

**The relationship between Post-traumatic Stress Symptoms
Severity, Coping Style, Perceived Social Support, Extent of
Service Experience, Age, and Gender within the Western Cape
police service**

Russell Jones

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Supervisor: Professor S.A. Kagee



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I, the undersigned, hereby declare that the work contained in this thesis is my own original work, and that I have not previously in its entirety or in part submitted it at any university for a degree.

ABSTRACT

The effects that a traumatic event can have on an individual and the high crime rate in South Africa (SA) were grounds for this two-phase study investigating Posttraumatic Stress Disorder (PTSD) symptom severity within the South African Police Service (SAPS). Two aims of the study were to investigate the relationship of six variables with the outcome variable (PTSD symptom severity) and to construct a regression model that could be used to predict levels of PTSD symptom severity amongst SAPS members. A third aim was to construct a current list of duty-related stressors that SAPS members face. Phase one comprised 19 officers compiling a duty-related stress list that would form the basis of the stressor questionnaire in phase two. Phase two comprised 97 officers in 12 stations in the West Metropol completing a battery of questionnaires, including the PTSD Symptom Scale: Self-Report Version (Foa, Riggs, Dancu, & Rothbaum, 1993), the Ways of Coping Questionnaire (Folkman & Lazarus, 1988), the Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988), an extent of service experience questionnaire, and the duty-related stress list. The results from the regression model showed perceived social support to have significant beneficial effects on PTSD symptom severity as did emotion-focused coping. Problem-focused coping was found to exacerbate PTSD symptom severity. Regression model 1 and regression model 2 were found to not significantly predict the outcome variable and the model of best fit was suggested.

OPSOMMING

Die uitwerking wat 'n traumatiese gebeurtenis op 'n individu kan hê en die hoë misdaadsyfer in Suid-Afrika (SA) was die beweegredes agter 'n tweefasige studie na die ernstigheid van die simptome van posttraumatiese stresversteuring (PTSV) in die Suid-Afrikaanse Polisie diens (SAPD). Die doel van die studie was om die verwantskap van ses veranderlikes met die uitkomsveranderlike te ondersoek en om 'n regressiemodel te skep wat gebruik kan word om die vlak van ernstigheid van PTSV-simptome by SAPD-lede te voorspel. 'n Derde doel was om 'n bygewerkte lys van die werksverwante stressors wat SAPD-lede in die gesig staar, saam te stel. In fase een het 19 polisiebeamptes 'n werksverwante streslys saamgestel wat as grondslag vir die stressorvraelys van fase twee gedien het. Fase twee het die voltooiing van 'n reeks vraelyste deur 97 beamptes van 12 stasies in die Wes-Metropool behels. Vraelyste het die volgende ingesluit: die PTSV-simptoomskaal: self-aanmeldingsweergawe (Foa, Riggs, Dancu & Rothbaum, 1993), die maniere-van-hantering-vraelys (Folkman & Lazarus, 1998), die multidimensionele skaal van waargenome sosiale ondersteuning (Zimet, Dahlem, Zimet & Farley, 1998), 'n vraelys oor die mate van dienservaring, en die stresvraelys. Die uitslae van die regressiemodel het getoon dat waargenome sosiale ondersteuning, asook emosioneelgefokusde hantering, 'n betekenisvolle voordelige uitwerking op die ernstigheid van PTSV-simptome het. Daar is gevind dat probleemgefokusde hantering die ernstigheid van PTSV-simptome vererger. Regressiemodel 1 en die gewysigde regressiemodel 2 het nie die uitkomsveranderlike betekenisvol voorspel nie en die model wat die meeste van pas was, is aanbeveel.

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Chapter One:

1. Introduction

1.1 Motivation for study

1.1.1 Stresses faced by Police

The very nature of policing dictates that officers are exposed to a regularity of stress and trauma that the majority of the population may only see in the media. The police service in South Africa encounter a myriad of situations that require specific responses. The situations may involve high or low stress. High stress situations are, for example, witnessing a fellow officer killed in the line of duty, killing someone in the line of duty, dealing with a murder, gang violence, rape, body recovery from an accident, witnessing domestic violence or riot, or exposure to a battered child. Low stress situations are, for example, traffic control duty, writing parking fines, paper work, and fellow officers not doing their job (Gulle, Tredoux & Foster, 1998). In 1994 the Centre for the Analysis and Interpretation of Crime Information (CAICI) of the South African Police Service (SAPS) determined that there were 1474 attacks on members of the SAPS in that year alone, of which 255 of the attacks resulted in the murder of a police officer (Marks, 1995). Suicide rates in the SAPS during 1991 was 60 out of every 100 000 whilst in the general population the suicide rate was 5 out of every 100 000 people (Burgers, 1994). The discrepancy between the two suicide rates suggests that police officers endure a greater level of psychological stress than civilians.

It has been found that police officers do not only find major traumas such as a murder scene stressful. They also find everyday stressors such as poor management responsible for the cumulative degrees of stress under which they work (Walker, 1997).

Police work has much in common with other emergency workers such as fire fighters or hospital workers as they all suffer from high levels of stress. North et al. (2002) found that of 181 volunteer fire fighters involved in the aftermath of the Oklahoma City bombing 24 (13%) had a diagnosis of Posttraumatic Stress Disorder (PTSD).

Although all emergency workers undergo high levels of stress in their work the police service handles many situations that are varying in nature. The hospital worker will only have specific situations, for example, patients coming into the hospital for a certain medical treatment. The police on the other hand have to work in a multitude of situations that relate to their profession on an unrelenting basis. The daily stressors on police officers that are beyond most people's experience put them into a group that would be prone to develop PTSD.

A decade has passed since the first free democratic elections in South Africa in 1994. Changes have been made for the better in all areas of life, including the police force. Internal management structures in the police service were, and still are being transformed into more racially integrated structures. Another significant change in the police service is that community members and police officers now collaborate on a more close and equal footing (Marks, 1995). This is evident from the introduction of Community

Policing Forums in each station where the community gets the opportunity to have their say. What do not seem to be changing for the better, however, are crime levels and police personnel that suffer from Posttraumatic stress symptoms.

1.1.2 Present crime levels in the country

CAICI of the SAPS has published statistics concerning crime in South Africa. In 1994, attempted murder was at a level of 19672 reported incidents, which rose to 21207 reported incidents in 2001. Robbery with aggravated circumstances was at a level of 62877 reported incidents, which rose to 87610 reported incidents in 2001. Rape and attempted rape was at a level of 29399 reported incidents, which rose to 37711 reported incidents in 2001. Illegal possession of firearms was at a level of 8071 reported incidents, which rose to 11264 reported incidences in 2001 (CAICI, n.d.).

In the West Metropol police areas of the Western Cape crime figures have also increased. Attempted murder rose from 843 reported incidences in 1994 to 1189 in 2001. Robbery with aggravated circumstances rose from 2274 reported incidences in 1994 to 5129 in 2001. Rape and attempted rape rose from 1071 reported incidences in 1994 to 1216 in 2001. Thefts of motor vehicles rose from 4234 reported incidences in 1994 to 4815 in 2001, and illegal possession of firearms rose from 285 reported incidences in 1994 to 842 in 2001 (CIAC, n.d.).

The present study does not assume a causal relationship between the levels of crime and PTSD symptom severity amongst the SAPS, as there are many extraneous variables that are not accounted for. What is suggested, however, is that as the crime levels increase workload for the police also increases, bringing with it more pressure under which they work. The more workload and pressure there is, the less time each officer gets to effectively cope with the stressful occurrences that may happen whilst on duty. Thus, if there is a rise in crime levels it may lead to the less effective coping of police officers and higher rates of PTSD symptoms and medical boarding (leave or discharge for medical reasons) amongst the SAPS.

There is no reliable data on the prevalence rate of diagnosis of PTSD in the SAPS. There has been limited study into this area and there is no consistent data. Peltzer (2001) reported the prevalence rate of PTSD diagnosis at 9.1%. Kopel (1996) reported the prevalence level of PTSD diagnosis at 28.4%. Kopel and Friedman (1997) however reported the prevalence level of PTSD diagnosis as high as 49%. These inconsistent levels of PTSD diagnosis can be explained by the differing samples used in each study. Peltzer (2001) used a sample of police officers from the Limpopo Province, which is a low violence area within South Africa. Kopel (1996) used a sample of officers from the Brixton Flying squad who are often involved in traumatic experiences. Kopel and Friedman (1997), who reported the highest level of diagnosis, drew a sample from the Internal Stability Unit (ISU) working in townships in the Johannesburg and Pretoria areas. The differing level of violence and crime, within which each sample has to work, is the reason for the differing levels of PTSD diagnosis.

However large the disparities between prevalence rates within these studies, the results are not reliable because of the different methods of assessment that were used in each study. Peltzer (2001) used a cut-off score on the Posttraumatic Symptom Scale (PTSS-10) as an indicator of PTSD caseness. Kopel (1996) used cut-off scores in three scales: the Civilian Mississippi PTSD scale, the Minnesota Multiphasic Personality Inventory – 2 PTSD (MMPI-2 PTSD), and the PTSD Checklist (PCL-C) as indicators of caseness. Kopel and Friedman (1997) used the cut-off scores on the Impact of Events Scale (IES) as an indicator of PTSD caseness. These scales were not designed for use in the diagnosis of PTSD. For a reliable diagnosis, scales should be used in conjunction with clinical interviews.

There is a paucity of reliable data on PTSD symptoms within the SAPS and coupled with the inconsistent data on PTSD diagnosis a gap in the research is exposed. The present study will add to the literature of PTSD and its symptoms amongst the SAPS through the exploration of PTSD symptoms in the SAPS. The study will investigate PTSD symptoms within the SAPS and the methods police officers use to cope with such symptoms.

1.2 *Aim of study*

The main aim of the present study was to construct a model that can account for and predict levels of PTSD symptom severity amongst members of the SAPS in the Western Cape given certain variables. The model to be investigated is constructed from prior literature and is shown in regression model 1.

$$\text{PTSD Symptom Severity} = B_0 + (B_1 \text{Problem-focused coping}) + (B_2 \text{Emotion-focused coping}) + (B_3 \text{Social Support}) + (B_4 \text{Extent of service experience}) + (B_5 \text{Age}) + (B_6 \text{Gender})$$

Regression model 1

B_0 is the constant

B_1 is the coefficient for Problem-focused coping

B_2 is the coefficient for Emotion-focused coping

B_3 is the coefficient for Social support

B_4 is the coefficient for Extent of service experience

B_5 is the coefficient for Age

B_6 is the coefficient for Gender

The relationships of the six variables in the model with PTSD symptoms will be investigated and are set out in the six hypotheses below.

1. Problem-focused coping has a significant negative correlation with PTSD symptom severity.
2. Emotion-focused coping has a significant positive correlation with PTSD symptom severity
3. Social Support has a significant negative correlation with PTSD symptom severity.
4. Extent of Experience has a significant negative correlation with PTSD symptom severity.
5. Age has a significant negative correlation with PTSD symptom severity.
6. The male gender has a significant negative correlation with PTSD symptom severity.

Chapter Two:

2. Literature Review

2.1 Diagnostic and key Features of PTSD

The DSM-IV-TR (American Psychiatric Association, 2000) details some events that would constitute a traumatic experience. Some are experienced directly, some are witnessed, and some are heard about through others' experience. Those experienced directly include but are not limited to "military combat, violent personal assault (sexual, physical, robbery, or mugging), being kidnapped, being taken hostage, terrorist attack, torture, incarceration as a prisoner of war in a concentration camp, natural or man-made disasters, severe automobile accidents, or being diagnosed with a life threatening illness" (APA, 2000, p. 463-464). Those events that are witnessed include but are not limited to, "observing the serious injury or un-natural death of another person due to violent assault, accident, war, or disaster" (APA, 2000, p. 464). Those events that are learned through the experience of others include but are not limited to "violent personal assault, a serious accident or serious injury experienced by a family member or a close friend, learning about the sudden unexpected death of a family member or a close friend, or learning that one's child has a life threatening disease" (APA, 2000, p. 464).

The DSM-IV-TR has laid out six clusters of diagnostic criteria (A through F) that must be fulfilled to give a diagnosis of PTSD. For a full description of the criteria detailed by the DSM-IV-TR the reader is referred to Appendix A. If all the criteria are not met, for

example the person presents with only two symptoms of avoidance and not the necessary three, an alternative diagnosis should be considered. The three key categories of symptoms of PTSD are intrusive re-experiencing, avoidance, and increased arousal and they will now be discussed.

2.1.1 Intrusive re-experiencing.

The intrusive re-experiencing of a traumatic event can be extremely stressful for a person. Re-experiencing may take the form of disturbing recollections of the event such as memories, emotions, or intense feelings of guilt or fear (Peterson, Prout & Schwartz, 1991).

Horowitz, Wilner, Kaltreider, and Alvarez in their 1980 investigation into the signs and symptoms of PTSD used two self-report measures, the Impact of Events Scale (IES; Horowitz, Wilner, & Alvarez, 1979) and the Symptom Checklist (SCL-90; Derogatis, Lipman, & Covi, 1973), and one clinical rating scale, the Stress Response Rating Scale (Horowitz, 1979). Participants were selected from the University of California Medical Centre. Inclusion criteria for the sample were a serious life event in the last year and having responded to that event on a 'neurotic level', meaning an extremely high level of distress linked to the serious event. The sample consisted of 66 participants, of which 34 suffered the loss of a loved one and 32 had sustained personal injuries from accidents, violence, and illness. Horowitz et al. found that on the IES intrusion items 88% of the sample had waves of strong feelings about the event, 85% reported that things they saw

or heard suddenly reminded them of the event, 76% reported thinking about the event when they did not mean to and had images that related to the event pop into their minds bringing back emotions related to it. Of the sample, 64% had difficulty falling asleep because of thoughts or images related to the event, and 44% had bad dreams related to the event. This high percentage of self-reported intrusive symptoms gives evidence for the high occurrence of intrusive re-experiencing that a traumatized person can present.

Horowitz et al.'s findings with the clinician's ratings, the Stress Response Scale, of a subject's intrusion were similar to that of the IES. Of the sample 95% percent had experienced 'pangs of emotions' (strong emotions), 90% were preoccupied with the event, 77% had intrusive thoughts about the event when they were not meant to, 51% found it difficult to fall asleep and 54% had bad dreams involving content about the event. Although the IES and the Stress Response Scale were found to have similar findings, the Stress Response Scale includes symptoms of PTSD in its intrusion items that should not be classified under Intrusive re-experiencing. Symptoms such as hypervigilance and exaggerated startle reactions are not in the DSM-IV-TR criteria for Intrusive re-experiencing, but rather fall under the criteria of Hyperarousal (see Appendix A). The inclusion of items in inappropriate subscales may have affected the reliability of the correlations between the subscales of the self-report instruments leading to erroneous interpretations of the data.

Exposure to events that symbolize the traumatic event can also be a very distressing form of re-experiencing for the individual. Anniversaries of the event, certain auditory or

olfactory stimuli that may be reminiscent of the trauma may be sufficient to trigger flashbacks or other forms of re-experiencing (Peterson et al., 1991). For this reason the PTSD sufferer will avoid certain aspects of their life that may trigger the re-experiencing. Avoidant behaviour and its effects will now be discussed.

2.1.2 Avoidant symptoms.

Avoidance of stimuli that evoke re-experiencing of the trauma brings about a great deal of behaviours that cause immense impairment to the social and occupational life of the sufferer. The DSM-IV-TR states that avoidance can be represented by efforts to avoid thoughts, feelings, or conversations associated with the trauma and efforts to avoid activities, places, or people that arouse recollections of the trauma. If persistent, avoidance can eventually develop into the inability to recall aspects of the trauma, denial, decreased interest in important activities (social or occupational), and a restricted range of affect (APA, 2000).

Horowitz et al. (1980) found that avoidance items of the IES showed that 71% of their sample did not discuss unresolved feelings about the event. Also 70% refused to get emotional about the event when thinking about it, 65% wished to banish the event from memory, 61% of the sample made an effort not to talk about the event, 58% felt that the event was unreal or had never happened, 53% stayed away from things or situations that might remind them of the event, 59% felt a numbing of the related emotions, and 50% did not let themselves have thoughts related to the event.

The Stress Response Scale found that 69% of the sample experienced numbness and avoided associated connections. Avoidance of the stimuli that may trigger memories of the event can lead to debilitating effects and behaviours within the individual if left unchecked, for example they may not wish to go to work, travel by car, or even leave the house in some severe cases.

Added to these symptoms of intrusive re-experiencing and avoidance are the symptoms that fall under the Hyperarousal criteria outlined in the DSM-IV-TR (see appendix A). The criteria encompass a general increased level of arousal of the sufferer and will now be discussed.

2.1.3 Hyperarousal symptoms.

Increased arousal of the individual that did not persistently present itself before the trauma can be factors such as irritability and sudden outbursts of anger, difficulty in falling asleep or concentrating, hypervigilance, or exaggerated startle response. These forms of arousal can extremely impair all aspects of life and are essential features (in which two or more must be present) of the diagnostic criteria of PTSD (APA, 2000).

Peterson et al. (1991) show that in addition to concentration difficulties, a patient will also have impaired task completion. A psychological assessment would typically reveal the patient to have impairments of memory and attention (Kaplan and Sadock, 1998). Increased arousal such as difficulty in falling asleep can result in that person being

ineffective in their occupational life, with possible consequences such as unemployment or exasperating existing irritability. The exasperation of irritability can put further strain on interpersonal conflict. The example shows how persistent increased arousal can affect the PTSD sufferer.

The above characteristics and diagnostic criteria are symptoms of the syndrome of PTSD that a patient would typically present. Studies review different contexts, different ethnic groupings, different psychiatric settings, and different occupational groupings. Whatever the focus of the study they all tend to discover that the prevalence of PTSD diagnosis is high in almost any context. The prevalence of PTSD is now discussed.

2.2 *PTSD prevalence*

2.2.1 *PTSD Prevalence in countries other than South Africa.*

2.2.1.1 *General population*

Prevalence studies of PTSD in the general population are few and far between. The reason may be for financial constraints or researchers do not see a reason why they should investigate a population that may not be at risk. Whatever the reason, studies that investigate general levels of PTSD diagnosis in the general population have been found

to be lacking. The following studies are some that consider prevalence trends in the population.

In a prevalence study of PTSD diagnosis Resnick, Kilpatrick, Dansky, Saunders and Best (1993) studied 4,008 random adult American women in the general population of The United States of America that had had a traumatic experience in their lives and those that had not. Random-digit dialling was used to gain access to the sample and PTSD was assessed using the National Women's Study PTSD Model. Among the women that had experienced crime related traumatic events, 25.8% had lifetime prevalence (met the criteria for PTSD diagnosis not within 6 months before the study) and 9.7% had current PTSD (met the criteria for PTSD diagnosis within 6 months of the study). Among the women that had experienced non-crime related traumatic events, for example a natural disaster, 9.4% had a lifetime prevalence of PTSD and 3.4% had current PTSD. From the total sample 12.3% had a lifetime prevalence of PTSD and 4.6% had current PTSD. The use of structured interviews over the phone in this study could have added a bias to the results. The participants may not have taken the study seriously over the phone or may have falsified their answers to say what they think may have been expected. It would have been better to conduct the interviews in a face-to-face manner.

Breslau (2001) reported a similar high result in her meta-analysis of a number of prevalence studies. She found the general level of PTSD diagnosis in the United States to be higher in women than in males with a rate of 11.3% and 6.0% respectively. The result was an unexpected one as the rate of trauma exposure in women was only 7% whereas in

men the rate of exposure was 14%. The result may suggest vulnerability in women to the effects of a traumatic situation.

2.2.1.2 Population that has experienced a traumatic event

Shore, Vollmer, and Tatum (1989), using the Diagnostic Interview Schedule (DIS; Robbins et al., 1981) found a prevalence of current PTSD diagnosis of 5.4% for men and 27% for women in a sample after the Mount Saint Helens' volcanic eruption in the United States. Shore et al. (1989) calculated the lifetime prevalence to be 2.9% for men and 3.3% for women. The results of this study are lower than the results of the previously reported two studies. The result is a reverse of the study conducted by Resnick et al. (1993). The lifetime prevalence in their study was higher than the current diagnosis of PTSD, whereas in Shore et al.'s study the lifetime prevalence was lower than the current PTSD diagnosis. The method of assessment may be a factor in the differing results. Whereas Shore et al. used the Diagnostic Interview Schedule face to face with the victims, Resnick et al. used interviews over the phone, which may have added bias to their results.

When comparing the crime related PTSD prevalence levels of Resnick et al. with the traumatic event exposure PTSD levels of Shore et al. it can be seen that the crime related PTSD is at a higher level than the traumatic event PTSD levels. The difference may have implications when looking at the crime exposure that police officers have and subsequent levels of PTSD.

2.2.1.3 The psychiatric population

In a study of psychiatric outpatient settings in the United States using the Structured Clinical Interview for DSM-IV (SCID) Sheeran and Zimmerman (2002), found the prevalence rate of current PTSD diagnosis to be 11.2%. Their result is a much higher level than the current rate found by Shore et al. (1989) and is likely owing to the population studied. Sheeran and Zimmerman included in their study 774 patients that were presenting for treatment at an outpatient psychiatric clinic and Shore et al. studied survivors of the Mount Saint Helen's disaster. The psychiatric outpatient context would provide a higher rate due to the nature of the subjects involved.

From the results, prevalence levels appear to be dependent on the type of trauma experienced. Resnick et al., (1993) report higher levels of PTSD diagnosis to be associated with crime related traumatic events and lower prevalence levels to be associated with non-crime related traumatic events. The lower results of Shore et al. (1989) can be used as another validation of this claim.

If the relation between crime related (and therefore violence related) trauma and PTSD levels is true then it would suggest that among police officers with their high exposure to crime PTSD levels would be high.

2.2.2 PTSD prevalence in South Africa

2.2.2.1 PTSD prevalence in a university sample

Hoffmann (2002) conducted a study investigating the incidence of traumatic events and trauma-associated symptoms/experiences amongst 245 tertiary students at the Pretoria Technikon. The results showed that there was a high level of intrusion and avoidance behaviours in non-PTSD diagnosed people. A convenience sample of 245 senior students from the Biological Sciences, Food Technology, Somatology, and Environmental Engineering departments in the Faculty of Natural Sciences was asked to complete questionnaires pertaining to biographical information, and traumatic events they had experienced. The finding was that 70.6% of the students had experienced one or more traumatic events in the preceding year. The traumatic experiences were violent robbery, physical assault, motor vehicle accident, natural disaster, forced evacuation, negative changes in life circumstances, death of a loved one, witness of injury or death, unexpected medical or psychological condition, and unwanted sexual activity. Half of all of the students reported the presence of intrusive thoughts for all of these events. The four highest traumatic experiences with intrusive thoughts were motor vehicle accidents, negative change in life circumstances, death of a loved one, and unwanted sexual activity with 81.8%, 92.3%, 95.1%, and 100% of students reporting intrusive thoughts for these events respectively.

With the exception of natural disaster and forced evacuation which had 0% of students reporting avoidant behaviour, all of the events had 63% or above of students reporting avoidant behaviours. The four highest were physical assault, motor vehicle accident, negative change in life circumstances, and unwanted sexual activity, with 80%, 81.8%, 80.4%, and 100% of students reporting avoidant behaviour respectively. There is a high percentage of both avoidance and intrusion within the sample but this does not necessarily indicate a present or future PTSD diagnosis or development. What it does point to however is that there is a high incidence of traumatic events that university students undergo and the experiencing of a traumatic event fulfils criteria A of the DSM-IV PTSD diagnostic criteria and that the students are a potentially at risk group.

2.2.2.2 PTSD prevalence in children at risk

Ensink, Robertson, Zissis, and Leger (1997) studied a sample of 60 Xhosa speaking children aged 10 – 16 years in the Khayelitsha area in Cape Town. The sample consisted of 36 (60%) boys and 24 (40%) girls. To determine the presence of PTSD Ensink et al. used semi-structured clinical interviews, and to determine the extent of exposure to violence they used a shortened version of the self-report Survey of Exposure to Community Violence. Results showed that all 60 children had been exposed to violence at differing levels. Of the sample 57 (95%) had witnessed violence, and 34 (56%) had experienced violence themselves. The clinical interviews showed that 13 (21.7%) children met the criteria for PTSD.

2.2.3 PTSD prevalence in police officers in countries other than South Africa

Differing levels of PTSD were found in studies investigating traumatic stress and duty-related stressors in police forces.

Carlier, Lamberts, and Gersons (1997) discovered the rate of PTSD diagnosis in traumatized Dutch police officers to be 7%. Using 262 officers (218 men and 44 women) measurements were taken 2 weeks after a critical incident (serving as the baseline interview), then at a 3 month interval and finally after a 12 month interval. All assessments were 90-minute face-to-face interviews with one of three trained independent research psychologists. Interrater agreement for posttraumatic stress symptoms was .98. Perceived private support of the officer was measured with a Dutch version of the Interpersonal Support Evaluation List (Cohen & Hobbeman, 1983), coping was measured with a Dutch version of the Ways of Coping Checklist (Folkman & Lazarus, 1980). In the sample they found that 7% of the officers qualified for a diagnosis of PTSD, with 6% manifesting between the initial interview and the 3-month period and 1% manifesting between then and the 12-month period. Although this level of prevalence seems not to be excessively high the percentage of officers with sub-threshold symptoms was as high as 34%.

However Robinson, Sigman, and Wilson (1997), studied duty-related stressors and PTSD symptoms in 105 suburban police officers (patrolmen and women) in the state of Ohio in the United States. Included in the self-report questionnaire were the demographic

variables of age, sex, race, and number of years in the service, a personal trauma experienced off duty scale, a duty-related trauma questionnaire, the Impact of Events Scale-Revised (IES-R; Weiss, 1993), a somatisation scale, the Symptoms Checklist-Revised (SCL-90-R), a Locus of control scale (Harel et al., 1993), and an assessment of whether the officers had been debriefed. Using the IES-R as a diagnostic measure of PTSD, results showed a PTSD diagnosis prevalence level of 13% among the officers.

The prevalence level of PTSD within Robinson et al.'s sample is higher than the level in the sample of Carlier et al. (1997). This is unexpected as the sample of Carlier et al. was selected from a group of traumatised officers which should have exhibit higher levels of PTSD than the sample of Robinson et al. whose sample were selected from non-traumatised officers. The disparity between the two levels may be accounted for by the methods of assessment used in each study. Robinson et al. used the IES-R as a diagnostic measure when it should not be used for this purpose on its own. To use this measure as the only diagnostic tool in the study may have affected the results. It may have elevated the true level of PTSD prevalence in the study. Carlier et al. on the other hand used specifically designed structured interviews for the diagnosis of PTSD. Their result is lower than that of Robinson et al. and may show a more realistic prevalence rate.

Renck, Weisaeth and Skarbo (2002) studied the high stress levels in 41 police officers following a rescue operation at a fire at a nightclub in Goteborg, Sweden. A prevalence of 5% of high stress levels was found. The study did not examine PTSD diagnosis but rather stress levels that may precipitate future PTSD. Psychological distress was

measured by use of the Posttraumatic Symptom Scale (Holen, Sund, Weisaeth, & Alexander, 1980), the Impact of Events Scale-Revised (Horowitz, Wilner, & Alvarez, 1979), and the General Health Questionnaire (Goldberg, & Williams, 1988). The reason for this low level of prevalence of high stress in the officers could be accounted for by only 22 out of the 41 officers actually participating in the rescue efforts at the scene of the fire, whilst the rest were helping in nearby hospitals.

2.2.4 PTSD prevalence in police officers in South Africa

International studies of PTSD are quite numerous but work done in South Africa on PTSD in the police is considerably limited in comparison. During work groups run by the Centre for the Study of Violence and Reconciliation in Soweto police stations, Marks (1995) builds a case for the study of PTSD in the police, and explicates their stressful positions. “Each and every member of the SAPS is undoubtedly undergoing enormous stress currently. Many may be experiencing post-traumatic stress syndrome as a result of being part of, or witnessing a traumatic act such as a murder, rape or brutal assault” (Marks, 1995, p. 9).

Although lacking in reliable methodological description a study investigating PTSD prevalence was carried out using riot police in Cape Town and the Eastern Cape in 1987 and using black police in 1988. The results showed that 36% of the riot police and 41% of the black police officers suffered from PTSD caseness (Burgers, 1994). The review by Burgers does not describe the sample any further in terms of characteristics such as where

the sample were stationed and the level of violence that they may or may not have been exposed to. It also lacks methodological explanations such as the measures used and their subsequent analysis. What this review does show however is firstly, the high levels of PTSD that existed among the police even in the 1980's in South Africa, and secondly the lack of adequate study and reporting done in South Africa in the area of police and PTSD.

Eight years later Kopel (1996), in her study of coping in police officers after traumatic exposure, found the level of PTSD in the Brixton Flying Squad to be 28.4%. Thirty-one of the 109 officers studied met the criteria cut-off points in two out of three scales: the Civilian Mississippi PTSD scale; the Minnesota Multiphasic Personality Inventory – 2 PTSD (MMPI-2 PTSD); and the PTSD Checklist (PCL-C).

Kopel and Friedman (1997) investigated the effects of exposure to violence in the South African police among 55 members of the specialised Internal Stability Unit (ISU) responsible for riot and violence control in the black townships in Johannesburg, Pretoria, and Vereeniging. They found an exceptionally high prevalence of PTSD in this unit. Twenty-seven of the 55 subjects (49%) met the criteria for PTSD using the Impact of Events Scale and a cut-off score of 25 recommended by Horowitz et al. (1980). The mean score of the sample was 24.4, which in itself is high. Two reasons could explain this high prevalence rate. Firstly, the specialized unit that was examined could possibly cause the inflated rate as this unit is known for being in highly stressful situations and hence cannot be used as a representative sample of the police population. Secondly, the Impact of

Events Scale is not designed as a diagnostic tool for PTSD; using structured interviews would have been a better option.

Peltzer (2001), in a sample of 66 South African police officers in the Northern Province (now Limpopo Province) using the Posttraumatic Symptom Scale (PTSS-10) found that 6 (9.1%) officers in the sample met the criteria for PTSD. This is a much lower rate than that found by Kopel and Friedman (1997) and the difference in sample can most likely account for this. Whereas Kopel and Friedman investigated the ISU known for its constant dealing with riots and extreme forms of violence, Peltzer's sample consisted of one police station in the Northern Province where the violence levels were almost certainly less.

Reliable research in South Africa pertaining to PTSD caseness is lacking. The lack of reliable research is due to the methods of assessment used to diagnose PTSD caseness.

The present study investigates how police officers cope and what are some of the factors that may make some officers less susceptible to PTSD than others.

2.3 Models of PTSD

Based on the literature it was decided that the theories within the Psychodynamic field lack sufficient falsification opportunities and were excluded from the present discussion. Rachman's Emotional Processing Theory, Ehlers and Clark's Cognitive Theory, Foa's

Emotional Processing Theory, and Brewin, Dalgleish and Joseph's Dual Representation Theory were included because they are currently more prominent and are all based on the information-processing paradigm. They will now be discussed.

2.3.1 *Rachman's Emotional Processing Theory*

Rachman (2001) views functional emotional processing as a process whereby "emotional disturbances are absorbed and decline to the extent that other experiences and behaviours can proceed without disruption" (Rachman, 2001, p. 165). Therefore dysfunctional emotional processing, or unsatisfactory processing, is a process whereby emotional disturbances are not absorbed correctly and is viewed by Rachman as the core of PTSD. He states that the index of unsatisfactory processing is that of intrusive re-experiencing. He further explains that there are four main factors that lead to unsatisfactory processing. These are: state factors, maladaptive cognitions, personality factors and stimulus factors. State factors are dysphoria, illness, and fatigue. Maladaptive cognitions are a tendency to catastrophise and use cognitive biases such as sense of inflated responsibility. Personality factors are a sense of incompetence, high levels of neuroticism, and extreme introversion. Stimulus factors are sudden and intense stimuli, unfamiliarity, signals of danger, irregularity of stimuli, and large chunks of stimuli. Although this theory suggests a way to measure the extent of PTSD via the intrusive-reexperiencing it lacks explanations of the other criteria such as hyper-arousal and avoidance. Rachman's four main factors to explain unsatisfactory processing and the subsequent presentation of symptoms seem inadequate as it fails to explain why a person with the same factors may present different

intensities and forms of symptoms. It lacks subjectivity of the type of symptoms that a patient will present. For this purpose Ehlers and Clark's Cognitive Theory is discussed.

2.3.2 Ehlers and Clark's Cognitive Theory

In formal nosology such as the DSM-IV-TR (APA, 2000) PTSD is classed as an anxiety disorder and information-processing concepts have been proposed as a framework for understanding the psychogenesis of this disorder. Ehlers and Clark (2000) point out that within cognitive models anxiety is built upon the appraisals of the person to impending threat in the present time. PTSD anxiety, on the other hand, is based upon memories of events that are in the past, which inherently presents a problem to the nosological categorization, as the initial anxiety-provoking stimulus may not actually be present at the time of the current onset of anxiety. Ehlers and Clark circumvent this problem by suggesting that the person with PTSD is unable to see the trauma as a time limited situation that has no ultimate adverse consequences for the future and processes the information of the event in a manner that does make it a threat to them in the present. Ehlers and Clark propose a two-stage process model that may lead to a sense of current threat in one individual and not another. The stages entail, (1) individual differences in the appraisal of the trauma and/or its sequelae and, (2) individual differences in the nature of the memory for the event and its link to other autobiographical memories.

In the first stage they argue that these individuals "are characterised by idiosyncratic negative appraisals of the traumatic event and/or its sequelae" (Ehlers & Clark, 2000, p.

320) that brings about a current threat, whether internal (I am a bad person) or external (the world is a dangerous place). The negative appraisals may take the form of either over generalisations from one situation to another making a previously safe situation into a possible threatening situation, exaggeration where the likelihood of further traumas are greatly increased, or how one felt and behaved during the event are erroneously perceived by the victim. The individual with PTSD symptoms may also appraise their symptoms in a negative fashion. They may consider flashbacks, not being able to concentrate for a length of time, irritability, or mood swings (which are normal short term reactions to a trauma) as signs that they have permanently changed for the worst. The appraisals of their emotional responses during and after the event such as shame, guilt, fear, and anger further compound these thoughts. The model suggests, as mentioned above, that people that suffer from PTSD are unable to see the trauma as a time-limited event without serious ramifications for their future; these negative appraisals of emotions can serve to exacerbate this (Ehlers & Clark, 2000).

The second stage of Ehlers and Clark's model is of the memory of the traumatic experience and its re-experiencing in a voluntary or involuntary fashion. They state that unwanted intrusion and/or the problematic voluntary retrieval of some memories and experiences of the trauma are due to the way the trauma is processed within the memory. Through its poor elaboration and incorporation into the autobiographical memory base, the event is unsuccessfully placed in the correct context of time and space, its semantic route. Ehlers and Clark suggest that problematic intentional recall can be accounted for

by this poor semantic routing and the unwanted intrusions can be accounted for by the lack of time context that the memory has.

Ehlers and Clark further argue that strong associations between the stimulus and response can make triggering of the intrusions and emotional response even more likely. These associations let the person predict what is likely to happen, as a schema would do, yet these associations are, unknowingly to the person, cue driven and therefore they do not know what stimuli may be causing the intrusions. Strong perceptual priming to traumatic details during the event and biased recall of these details can further bring about re-experiencing from apparently cue-less situations.

These ideas could also be thought of as representations within the mind. Foa's Emotional Processing Theory puts forward a theory exploring this idea.

2.3.3 Foa's Emotional Processing Theory

Foa and Kozak (1986) posed an emotional processing model that builds on Lang's (1979) bio-informational theory of emotion which proposes that fear is represented in memory through structures comprising three kinds of information: (a) information about the feared stimulus situation; (b) information about verbal, physiological, and overt behavioural responses, and (c) interpretive information about the meaning of the stimulus and response elements of the structure. Lang argued that this information is the subjective representation of escape and avoidance for an individual. Foa and Kozak proposed that if

the structure is truly a program to avoid or escape danger then it must include information that the stimulus and responses are dangerous as well as information for avoidance or escape. Therefore a fear structure is distinguished from other information structures by virtue of its content meaning, otherwise known as its 'danger information'. They further argue that pathological structures involve excessive response elements such as avoidance and hyper-arousal, and resistance to modification (Foa & Kozak, 1986).

What differentiates PTSD from other anxiety disorders according to Foa and Kozak is that the traumatic event was subjectively significant and violated formerly held beliefs of safety and self-competency, thus changing that stimulus association to one of danger and threat rather than one of security. This has the effect of taking predictability and controllability away from the world and competency away from the self.

To illustrate the difference between PTSD's significant debilitating effect and other anxiety disorders using this concept of fear structures, one can compare a simple phobia and PTSD. Three important factors of fear structures exist in PTSD: the intensity of the response, the size of the structure, and the ready accessibility of the structure (Foa, Steketee, & Rothbaum, 1989). All three are linked in cause and affect that they have on the sufferer. Due to the change, typically a decrease, in subjective safety rules of the individual's world the size of the fear structure is enlarged, as there are now many things that they perceive to be threatening and constitute the structure. The swelled fear structure in turn leads to an increased pervasiveness of activating stimuli and their increased accessibility, bringing about a lower activation threshold. Due to this lower

threshold the responses (physiological and behavioural) can be triggered with greater ease resulting in frequent bursts of arousal, re-experiencing, and avoidance of the stimuli that are often of great intensity. The PTSD symptoms shown by the sufferer can be used as an index for the complexity of the fear structure. The more detailed and complex the fear-structure is, the more personal safety assumptions that have been proved wrong have been incorporated into it, and therefore the more PTSD symptoms the sufferer will present. The fear structure of a simple phobia on the other hand is extremely specific, for example, in a patient who has a phobia of snakes that person will only present that fear. Foa et al. (1989) suggested that PTSD is a larger, more detailed and more complex fear structure than a phobia comprising a multitude of component anxiety-activating stimuli. This wide range of stimuli, or triggers, renders PTSD a greater disruption to normal functioning than a phobia may be because of the phobia's specificity in its anxiety provoking stimuli.

Foa and Riggs (1993) suggested three factors that may be able to explain why some people fall prey to trauma and others do not in the same circumstance. The three factors are the victim's schemas about the world and self before the trauma and the records of specific events that they may have, the victim's memory records of the actual trauma, and the victim's memory records of the post-trauma experiences. Foa and Rothbaum (1998) elaborate on these factors and demonstrate that they are all interlinked. The pre-trauma schemas of the world and the self will affect what is recorded during the trauma and these will both in turn influence how the post-trauma experiences are interpreted which in turn influences the schemas of self and of the world.

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They suggest that if the victim has rigid pre-trauma positive schemas of the self as being competent and the world as being controllable, just, and safe, these beliefs would be contradicted by the trauma. Conversely if the person has rigid pre-trauma negative schemas about the self as being incompetent and the world as being dangerous these would be confirmed by the trauma. Yet they argue that poor post-trauma functioning and recovery rates are not due to a positive or negative schema of the world and self, as some authors suggest, but due to the holding of a schema that is placed in an extremity. Therefore it is not the positive or negative aspect of the schema but the intensity of the comprising elements of the schema that effect post-trauma functioning and recovery rates. There are two ways therefore that pre-trauma information can impede emotional processing. First, when the information is incongruent to the held beliefs that the self is competent and the world is safe and second, when the information of the trauma upholds the belief of the self as incompetent and the world as unsafe. They implicitly say that the victim with a less rigid extreme schema and a more realistic evaluation of the world and self will be better equipped to psychologically deal with the trauma.

During a traumatic event a memory is constructed that comprises stimulus elements, response elements, and meaning elements (Foa and Rothbaum, 1998). Stimulus-danger associations are associations that a victim will form during the event. For example, if an old man attacked the victim, that victim may associate old men with danger. The pre-trauma schemas that the person holds will affect the amount of associations. The more associations that are made, the more the person perceives the world as very unsafe and the more processing the trauma will need. The more stimulus-danger associations there

are the more response elements, for example physiological and behavioural, there are for escape or avoidance. The more severe the associations the more severe the PTSD symptoms will be.

Post-trauma records are memories of interactions with others, the victim's subsequent interpretation of these interactions as positive or negative, and difficulties in returning to pre-trauma levels of functioning. Foa and Rothbaum (1998) suggest that emotional processing will be obstructed when the victims interpret these interactions and their own personal emotional reactions as negative and as further evidence for the world being unsafe and the self being incompetent. They further argue that this process can be traced back to the pre-trauma schemas and the memories of the trauma. Foa and Rothbaum state that the pre-trauma schemas, the trauma memory, and post-trauma experiences all work together in unison in the formation of chronic PTSD and reinforce what they hypothesize to be the core of psychopathology: "the world is completely dangerous, and the self is totally inept" (Foa & Rothbaum, 1998, p. 83).

2.3.4 Brewin, Dalgleish, and Joseph's Dual Representation theory

Although Brewin, Dalgleish and Joseph (1996) give credit to emotional processing network theory (Foa & Kozak, 1986; Foa et al., 1989) for the furthering of cognitive theories they argue that it is not sufficient to explain the full complexities of the PTSD syndrome. They argue that the network theory of Foa et al. (1989) cannot adequately explain, in its one-level explanation, PTSD symptoms such as denial, numbing, and

pathogenic amnesia which require high levels of representation which cannot be accessed in the information of a single memory. Furthermore the phenomenon of retrievable memories and flashbacks seems not to be explained by this theory with sufficient adequacy.

Brewin and Holmes (2003) propose that to understand the full syndrome of PTSD, one must have a two-system paradigm, a two-memory system. Detailed trauma information, such as the time, place, and meaning of the event, is stored in one memory system and non-specific information such as the internal physiological response is stored in another memory system. Brewin (1989) proposed a theory, which Brewin et al. (1996) build upon, that involves dual representations of the trauma in the memory base. The first representation is one of the conscious experiences of the trauma, which can be recalled and edited at will by the individual, and the second representation is of the unconscious experiences of the trauma which cannot be recalled at will by the individual.

The conscious, detailed representations of the trauma in memory is called Verbally Accessible Memory (VAM) and can be retrieved from the autobiographical memory at any time by the person and are memories with a complete personal context of past, present, and future (Brewin & Holmes, 2003). These memories according to Brewin et al. (1996) will include information about meaning of the event, emotional and physiological information, and situational information. They are reasonably detailed but can be highly selective because high levels of anxiety during the trauma increase its attentional selectivity and lowers short-term memory capacity.

The unconscious representation of trauma in the memory is called Situational Accessible Memory (SAM) and contains information of a lower level of processing of aspects that were too quick to be recognized by the VAM, for example bodily changes such as heart rate or increase in rate of respiration, and cannot be retrieved at will (Brewin & Holmes, 2003). The SAM can only be accessed when in a context that is similar to that of the traumatic event. Brewin, Dalgleish and Joseph state that this context can be internal (thinking about the trauma) or external (hearing about a similar event). The SAM differs in capacity and content meaning. SAM's are a lot larger and less selective, and the meanings of the memories may be different than in the VAM.

Brewin et al. (1996) argue that the process of emotional processing after the trauma, the aim of which is to reduce negative affect, restore a sense of safety and control, and which may have a positive or negative outcome, can be explained through the use of VAM and SAM. The SAM provides sensory and physiological feedback of the event to the person, known as flashbacks, bringing with it the relevant emotional arousal given to it by the VAM. The attempt is then made in the VAM to accommodate this feedback or information by giving meaning, cause, and blame where needed and editing the autobiographical memory where needed (Brewin, 1989). This process changes the content of the SAM so that its information does not automatically reactivate.

Brewin and Holmes (2003) point out that this theory suggests that PTSD is a hybrid disorder that potentially includes two pathological processes. Firstly, the resolution of negative beliefs and their emotions, which can be accounted for in the VAM, and secondly the management of flashbacks for which the SAM is responsible. Recovery is

dependant on the outcome of both these processes and therefore may give valuable information for interventions.

Each of the above theories gives its unique explanation of PTSD aetiology. The Cognitive Theory of PTSD of Ehlers and Clark bring a two stage model which involves individual differences in appraisal of a threatening situation and the individual differences in the meaning of these appraisals. The Emotional Processing Model of Foa brings the fear structure into view, consisting of information about the feared situation, information about behavioural, psychological, and physiological responses, and ones own interpretive information about the meaning of these responses. The Dual Representation Theory of Brewin, Dalgleish and Joseph contribute the two memory structures of the Verbally Accessible Memory (VAM) and the Situational Accessible Memory (SAM), and the contextual and meaning representations that are held within the VAM and not the SAM. What these theories have in common though is the subjective meaning that we hold in either the two stages of Ehlers and Clark's theory, or the Fear structure of Foa's theory, or the VAM and SAM of Brewin, Dalgleish and Joseph's theory. This is the main theme that runs throughout the theories and is what links them in the aetiological question. It could be assumed then that if we all represented things in the same way we would all present the same symptoms of PTSD, but as sufferers of PTSD do not all present exactly the same symptoms it carries on to say that subjectivity in meaning, appraisal, and outcome is key to our understanding of the disorder.

There is a plethora of theories concerning the aetiological origins of PTSD and its maintenance, the above theories being only a brief selection of the leading theories.

2.4 *Key Aspects of Study*

The key variables of the study are Coping, Social Support, and Extent of Service Experience therefore a brief conceptualisation of each of the variables will now follow.

2.4.1 *Coping*

There have been various attempts at defining coping and styles of coping. Houston (1989) defined coping as “a response or responses whose purpose is to reduce or avoid psychological stress” (Houston, 1989, p. 385). He states that coping strategies are either overt action-oriented strategies such as avoidance, escape, and actions on the physical environment or covert strategies working within the organism such as cognitive problem-solving. Skinner and Edge (1998) define coping as a synonym for ‘dealing with’ or ‘reacting to’ a certain stressor. Folkman and Lazarus (1986) on the other hand refer to coping as the cognitive and behavioural efforts to manage environmental demands that have been appraised as threatening or exceeding personal capabilities. They state that there are two categories of coping: problem-solving coping, comprising interpersonal efforts to solve problems and stressful situations; and emotion-focused coping aimed at reducing stress and regulating emotions. Folkman and Lazarus suggest that each person

may use both during a stressful or traumatic event, some more than others, but one may be more helpful to the person than the other at that time.

2.4.1.1 Emotion-focused coping

In his study of the effects of coping and seeking social support on psychological distress among 233 police officers in a northeastern city in the United States, Patterson (2003) found emotion-focused coping to have a significant stress-reducing effect on stressful life events. The scales used included a demographic questionnaire, comprising the variables age, marital status, gender, years of police experience, education, and rank, a work events scale developed from two existing scales, the Police Stress Survey (Speilberger, Westbury, Grier, & Greenfield, 1981), the Critical Life Events Scale (Sewell, 1983), and the Social Readjustment Scale (Holmes & Rahe, 1967). The hierarchical multiple regression analysis that followed comprised of four steps. Step one was adding the demographic variables to the equation, step two was to add the life events, step three was to add the coping variables, and step four was to investigate the difference between the problem-focused and emotion-focused coping. In step three adding the coping variables slightly but significantly affected the variance with an R^2 change of .02, a 2% change [$F = (11,157) = 7.81, p < .01$]. In step four Patterson discovered emotion-focused coping and reported stressful life events to have a significant negative relationship ($\beta = -0.18, p < .05$). This suggested that when people use certain emotion-focused styles of coping such as thinking the situation is not that bad, they felt less distressed than they would have had they not employed this form of coping. Patterson also found that problem-focused coping

did not have a significant stress-reducing effect. The relationship between problem-focused coping and stressful work events was positive and significant ($\beta = 0.16, p < .05$). This finding implies that although a person may attempt to address the problem and use problem-focused ways of coping such as using ones training to get out of a situation, this method may not have the desired lowering effect on their stress. Although Patterson's study is methodologically sound, its cross-sectional self-report method is not one that is conducive to studying coping and stress since both are ongoing and dynamic in nature. A longitudinal methodology may have been more appropriate.

2.4.1.2 Problem-focused coping

On the other hand there is evidence to suggest that problem-focused strategies of coping do indeed help in reducing stress. In his study of coping strategies among 180 police recruits in a U.S. police academy, Violanti (1992) used the Centre for Epidemiological Studies Depression Scale (CES-D) as an indicator of personal distress, the Ways of Coping Check List (WCCL) to assess coping and social support, and a shortened version of the Holmes and Rahe Social Readjustment Scale (Dohrewend & Dohrewend, 1984) to measure external life events. His results showed problem-solving coping to significantly reduce stress with a standardised beta value of $\beta = .15056 (p < .05)$ This meant that for every one standard deviation increase in planful problem-solving there was a standard deviation decrease in distress of 0.15 which was the most significant within the results. Since the sample is that of police recruits in training, they may be inclined to not report all the things that stress them in the training wanting to look good in the eyes of the

researcher. This may play a role in the possible inaccuracies of the study since the recruits were using self-report measures.

Burke (1998), in concurrence with Folkman and Lazarus, determines coping to be two dimensional in nature, yet he regards problem-solving as proactive, take charge and the emotion-focused strategy as escapist or avoidant. Burke's study examines work and non-work stressors and well being of 391 police officers (375 males and 16 females) in Ontario, Canada, focusing on the role of coping. Coping strategies were measured by use of a 38 item questionnaire in which the officer responded to how likely they were to rely on certain coping methods to each item. These methods were alcohol and drugs, talking to others, anger catharsis, physical exercise, sleeping, withdraw, problem-solving, and minimize concerns. He found that the use of the avoidant/escapist coping styles (withdraw, sleeping, anger catharsis, and alcohol and drugs) and work/family conflict were positively associated with one another ($r = 0.28, p < .01$) and the use of active coping styles (talking to others, problem-solving, minimizing concerns and physical exercise) to be negatively associated with work/family conflict ($r = -0.10, p < .05$). This illustrates that active, problem-focused coping helps to reduce work family stress. Although his findings were statistically significant they were not of great magnitude. Burke suggests that the use of more active forms of coping can increase job and family satisfaction and cohesion.

In an investigation of the Oklahoma City bombing and subsequent coping, functioning, and adjustment in 181 rescue workers, specifically fire fighters, North et al. (2002) used

the Diagnostic Interview Schedule (DIS; Robins, Helzer, Cottler, & Goldring, 1989) in their assessment of these variables. They discovered that avoidant coping styles were rife, specifically alcohol abuse. The avoidant coping was correlated to lower self-reported job satisfaction ($r = .658, p < .05$) compared to those without. When this style of coping was not used, there was a significantly higher job satisfaction among the fire fighters. The problems that arise in this study are the fact that the fire fighters may have biased the results so not to appear 'weak'. This is a problem with all similar 'macho' services including the police service.

Kopel (1996), in her study of coping and PTSD in police officers in the Brixton Flying Squad in Johannesburg, South Africa, found emotion-focused coping strategies to be correlated with higher PTSD symptom severity. To measure coping, Kopel used the Ways of Coping Checklist – Revised (Folkman & Lazarus, 1986). This self-report measure is comprised of eight factors: Distancing, Self-control, Accepting responsibility, Escape-avoidance, Positive re-appraisal (these five factors are represented in the present study as Emotion-focused coping), Confrontive coping and Planful-problem solving and Social support seeking (these three factors are known in the present study as Problem-focused coping). Using the Civilian Mississippi PTSD scale, the Minnesota Multiphasic Personality Inventory – 2 PTSD (MMPI-2 PTSD), and the PTSD Checklist (PCL-C) to measure PTSD symptom severity, Kopel correlated these results with the results of the Ways of Coping Checklist-Revised. She found that higher scores on the three PTSD measures were significantly associated with escape-avoidance ($r = .53, p < .01, r = .61, p < .01$, and $r = .58, p < .01$ respectively), self-control ($r = .25, p < .01, r = .37, p < .01$, and

$r = .42, p < .01$ respectively), and accepting responsibility ($r = .22, p < .05, r = .19, p < .05$, and $r = .29, p < .01$ respectively). She also found that police officers diagnosed with PTSD used more emotion-focused coping than did the police officers not diagnosed with PTSD.

In the current study Emotion-focused coping strategies refer to efforts undertaken to regulate stressful emotions or what the individual was thinking during the stressful event and describes thoughts to regulate their own emotional responses to the event (Folkman & Lazarus, 1988). For instance, the officer may deny that there is or was any threat or may reappraise the situation as not life threatening to calm him or herself down (Cohen, 1987). Problem-focused coping strategies in the present study refer to efforts undertaken to manage or alter the troubled person-environment relationship that is the source of the stress, or actions taken during the stressful event aimed at changing the circumstances through addressing the problem itself (Folkman & Lazarus, 1988). For instance, the officer may use his training to overcome a difficult suspect or find ways to escape a dangerous situation (Patterson, 2000).

It can be seen from the literature discussed above that the two strategies of coping have different effects when used by trauma victims. This study investigates which type of coping strategy is most employed by the sample of SAPS members in the Western Cape area and what relationship each strategy has with PTSD symptom severity.

2.4.2 Social Support

Social support for Patterson (2000) is receiving informational, tangible, and emotional support from others. Social support can be regarded as a rewarding relationship and although these relationships do not have to be intimate, some often are.

In reviewing effects of PTSD on interpersonal relationships in emergency workers McFarlane and Bookless (2001) state that, “many of the symptoms that follow a traumatic experience greatly impair the very attachments that could potentially help the individual regulate their arousal” (McFarlane & Bookless, 2001, p. 265-266). The cluster of symptoms that make up PTSD, such as hyper-arousal (which can be sudden outbursts of anger), avoidance of stimuli that are similar to the traumatic event (for example, the behaviour of not travelling by train in a train accident victim), or intrusive thoughts and dreams which hamper work and sleep, will at times be damaging to any relationship, intimate or not.

Social support has increasingly received attention as an important mediating factor between stress and possible later pathology (Coyne & Downey, 1991). Findings by Buunk and Verhoeven (1991) in their study of companionship and support at work supported the moderating effect of social support on stress. The research participants were 40 state police officers (38 men and 2 women) in the southern part of the Netherlands. Stress was measured using the Organizational Stress Questionnaire (Van Dijkhuizen, 1984), which was based on questionnaires developed by Kahn (1981) at the

Institute for Social Research at the University of Michigan. The questionnaire consists of scales for perceived social support, psychosomatic complaints, negative affect, and cognitive anxiety. The Daily Interaction Record in Organizations (DIRO) with subscales of daily negative affect, daily stressful events record and social interaction record was additionally used. The study yielded results indicating that the number of interpersonal frustrations correlated strongly with negative affect ($r = .58, p < .01$), and work overload was also positively correlated with negative affect ($r = .26, p < .05$). Interestingly they found that less negative affect was correlated to more rewarding social interactions at work with the Beta value at $\beta = -.78$ ($p < .01$). The intimate social support and the instrumental social support variables within the interaction variables were not significant. Buunk and Verhoeven also suggest that this support is only positively felt if it is not provided in a manner that is perceived to be overprotective and threatening to self-esteem. This could suggest that the intimate social support and the instrumental support in the study may have been provided in an overprotective manner. Whereas most of the sample consisted of men, the intimate support may not play a major role as this profession is perceived as a 'macho' profession. To representatively study this more women need to be included in the study.

Boscarino (1995) tested the hypothesis that individuals exposed to traumatic stress who have lower social support have higher rates of posttraumatic stress and associated disorders in a sample of 2490 male Vietnam veterans. Using the Diagnostic Interview Schedule (DIS; Robins, Helzer, & Cottler, 1987), Boscarino discovered that social support was associated negatively with PTSD symptoms ($r = -.14, p < .01$), anxiety ($r = -$

.16, $p < .01$), depression ($r = -.21$, $p < .01$) and alcohol abuse ($r = -.06$, $p < .01$). Although Boscarino does not assign a causal connection between social support and any of these variables he does suggest a pervasive contribution of social support in one's life.

Although using a different sample group to that of Boscarino, Stephens and Long (1999), in their study of trauma and social support in 527 New Zealand police, also found social support to play a major role in reducing or limiting the symptoms of PTSD. The Mississippi PTSD (M-PTSD) scale was used to measure PTSD symptoms, the Traumatic Stress Scale (Norris, 1990) was used for the measurement of stressors, and four functional support items were used to assess the person's perception of emotional support. Social support was found to explain 25% ($F(11, 505) = 16.68$, $p < .01$) of variance in PTSD scores. Social support, such as talking about the trauma with friends or talking to supervisors, gave rise to the strongest simple Pearson's r correlations ($r = -.37$, $p < .01$ and $r = -.29$, $p < .01$) respectively. This suggests that it is not only support from close friends that helps an officer but also the support of superiors.

Patterson (2003), in his study of the effects of coping and seeking social support on psychological distress among 233 police officers in a northeastern city in the United States, found a small but significant beneficial effect of social support on stress levels, with a beta value of $-.21$ ($p < .05$). His hypothesis predicting a moderating effect between seeking social support and work events was supported, although not strongly, which implies that the more social support used the less stressful the work events seemed to be for the officers.

Evidence from the literature shows social support to have a significant alleviating effect on stress symptoms (McFarlane, 1988; Patterson, 2003; Stephens & Long, 1999). The present study aims to show that this beneficial relationship between social support and PTSD symptom severity to be upheld among the SAPS.

2.4.3 Extent of Service Experience

Extent of experience in the police service is an important factor to incorporate when one investigates PTSD symptoms among the police as it can reveal certain 'high risk' groups. It has been assumed that the longer an officer is in the service the 'harder', less reactive an officer gets to trauma exposure and the more proficient the officer becomes in coping with the effects of trauma.

Gulle et al. in their 1998 article, examined inherent (danger work) and organisational (administrative demands) stress placed on police in the SAPS compared to an American sample. Included in their study was biographical data such as age, sex, language, race, marital status, number of children, education, rank, years of service and the unit in which the officer served. The beneficial factors may have been being able to cope with a trauma more efficiently through the social network of marriage or not being affected so much by a certain trauma, as the officer has been in the service for a long time. Although they found evidence of biographical factors having an effect on the mean or total stress score it was not statistically significant. The main findings of the study show that the sample of

South African police was under significantly more inherent and organisational stress than that of the comparable US sample.

Stephens and Long (1999), in their study of trauma and social support in 527 New Zealand police, found their main result to be that social support played a significant role in the reduction or limiting of the symptoms of PTSD. What also are of interest from their study are the simple correlations between PTSD scores and the demographic variables of length of service and age. The Pearson's r for these two variables in relation to PTSD scores were .15 ($p < .01$) and .12 ($p < .01$) respectively. The correlations indicate that there is a positive relationship between these variables.

Patterson (2000) found demographic variables do indeed have an effect on stress levels and coping among police personnel. Using the Ways of Coping Questionnaire with a sample of 233 police officers from a middle-sized urban police department in the United States, Patterson found that education, rank, and experience were positively associated with problem-focused coping with .11 ($p < .05$), .17 ($p < .01$), and .12 ($p < .05$) respectively. He also found education to be positively correlated with seeking social support .12 ($p < .05$). Therefore if problem-focused coping and social support reduce PTSD symptoms these demographic variables may have a similar affect.

Kopel (1996), in her study of coping in police officers in the Brixton Flying squad in Johannesburg, South Africa, after trauma exposure, used univariate analysis of variance (ANOVA) to compare the two demographic factors of rank and race with PTSD severity.

Rank had no main effect on PTSD severity $F = .34$ ($p > .05$) and neither did race $F = .56$ ($p > .05$). One could hypothesise that the difference in results between Kopel and Patterson is due to the differing population samples.

Van Niekerk (1997), on the other hand, examined trauma-related psychiatric symptoms in the South African police service and found demographic variables of age, length of service, and marital status to have an affect on PTSD. Van Niekerk studied two groups, one control group and one experimental group, consisting of officers not receiving psychiatric treatment and those that were, respectively. Using the PTSD Interview (PTSD-I; Watson, Juba, Manifold, Kucela, & Anderson, 1991), the Beck Depression Inventory (BDI), the State-Trait Anxiety Inventory (Spielberger, 1970), and the Life Expectancy Survey (LES; Sarason, Johnson, & Siegal, 1978), Van Niekerk found that the experimental group had significantly higher rates of PTSD than the control group with means of 86.350 and 53.350, respectively. Further, it was found that the demographic variables do have an affect on PTSD scores. The experimental group had a mean age of 35 as opposed to 31 years of age in the control group, the length of service was 14 years in the experimental group compared to 10 years in the control group, only 44% of the experimental group were married compared to 55% of the control group and the experimental group had double the rate of divorce at 25% than the control group at only 10%. It therefore can be assumed from the study that the factors of age, length of service, and social support (which implicitly comes from the good marital relations) do have a certain effect on PTSD symptom severity.

It has been seen that demographic variables do indeed play a role in the reducing of stress and the facilitation of coping for individuals within the police service. The present study aims to show that the higher the experience of the officer, the lower his or her PTSD symptom severity will be. The demographic factors that will form the extent of experience variable in this study are drawn from the literature discussed above. The variables are: rank; years in police service; and education level attained. Age and the male gender are thought to have negative correlations with PTSD.

2.5 Conclusion

The discussion above highlights some main factors that can affect the development of PTSD symptoms in a police officer. These factors are coping, perceived social support, extent of service experience, age, and gender.

Coping, namely Emotion-focused and Problem-focused styles have a different effect when used by trauma victims. Emotion-focused coping, as suggested by Patterson (2003), appears to work more efficiently in reducing stress and alleviating PTSD symptoms. On the contrary, it has been found by others (Violanti, 1992; Burke, 1998; North et al., 2002; & Kopel, 1996) that it is rather Problem-focused coping that appears to work more efficiently in reducing stress and alleviating PTSD symptoms.

Evidence from the literature shows social support to have a significant reducing effect on stress symptoms as shown by McFarlane (1998); Patterson (2003); and Stephens & Long, (1999).

Although Kopel (1996), found race and rank to have no affect on PTSD symptoms, demographic variables have a role to play in the reducing of stress and the facilitation of coping for individuals (Van Niekerk, 1997).

The present study investigates the relationship between coping, perceived social support, extent of service experience, age, and gender with PTSD symptom severity within the sample of SAPS members. It aims to test a number of hypotheses. Although both coping strategies may be employed in situations that arise, officers that employ more Problem-focused coping strategies than Emotion-focused strategies will have less PTSD symptom severity. The study further aims to support the findings above that social support has a significant stress-reducing affect thus lowering PTSD symptom severity scores of the officer. The study has six hypotheses.

1. Problem-focused coping has a significant negative correlation with PTSD symptom severity
2. Emotion-focused coping has a significant positive correlation with PTSD symptom severity
3. Perceived social support has a significant negative correlation with PTSD symptom severity
4. Extent of service experience has a significant negative correlation with PTSD symptom severity
5. Age has a significant negative correlation with PTSD symptom severity
6. The male gender has a significant negative correlation with PTSD symptom severity

The present study will construct a regression model for the prediction of PTSD symptom severity from the variables.

$$\text{PTSD Symptom Severity} = B_0 + (B_1 \text{Problem-focused coping}) + (B_2 \text{Emotion-focused coping}) + \\ (B_3 \text{Perceived social Support}) + (B_4 \text{Extent of service experience}) + (B_5 \text{Age}) + (B_6 \text{Gender})$$

Regression model 1

Chapter Three:

3. Method

The study was conducted in two phases. The reason for two phases was a practical one. The construction of the stressor questionnaire had to take place before the main study could begin otherwise important information would not have been included into the data. Phase one consisted of constructing a list of duty-related stressors in police work that was later included in phase two. The second phase consisted of a battery of questionnaires administered to 123 police officers investigating the effects of coping, perceived social support, extent of service experience, and stressors on PTSD symptoms.

3.1 Phase One

3.1.1 Participants

Participants were 20 police officers from the stations of Athlone, Langa, Manenberg, and Philippi (five from each station). Inclusion criteria were that the officers had been on active patrol within their career and had been in the police service for more than a month prior to the research. The officers, of any rank, could be in a vehicle, on foot, on bicycle, or on horseback. Detectives were also included. Exclusion criteria included being out of active public duty, chiefly concerned with administrative duties for their entire police career, or had only been in the service for one month or less prior to the research.

3.1.2 Procedure

After having received provincial permission to conduct the study within the relevant stations the Human Resource Manager (HRM) or the communications officer at each station were contacted and meeting times were scheduled. At each station, which required me to do so, I was introduced to the Station Commissioner for further permission to maintain a presence in the station in order to collect data. Five officers of varying ranks that were available at the time were introduced to me and I explained the purpose of the study to them. They were assured confidentiality and anonymity. They were asked to generate a list of as many of the top stressful duty-related situations (in their opinion) in police work as they could. They were provided with blank sheets of paper for their lists. Each officer took approximately 10 minutes to complete the list. Four officers preferred to do it in their own time over night, as they were too busy at the time. One officer lost his list therefore only 19 were used to draw up the final stressor questionnaire. These 19 lists were then compiled to one final list and used in the second phase of the study as the stress questionnaire (see appendix B).

3.2 Phase Two

3.2.1 Participants

Participants were 123 Western Cape police officers identified using convenience sampling. The station areas from which the officers were drawn were Athlone,

Claremont, Dieprivier, Grassy Park, Kensington, Langa, Lansdowne, Manenberg and Nyanga Junction, Philippi, Woodstock, and Wynberg. Inclusion and exclusion criteria were the same as in phase one of the study. The officers had to have been on active patrol within their career and in the police service for more than a month and had not been chiefly concerned with administrative duties for most of their police career.

The lack of available population information to which the researcher had access, resulted in the subsequent use of the non-probability sampling method of convenience sampling. As the study was a questionnaire survey within the SAPS, in itself an enclosed grouping, this lack of prior information pertaining to the population was reasonable and expected and did not seem to pose a major problem to the research methodology.

From the sample, 26 (21.1%) questionnaires were incomplete; therefore 97 participants were included in the study. The final number of participants was above the amount per variable recommended by Field (2000) for adequate statistical power. Of this final number, 26 (26.8%) were females. Ranks varied from constable to captain.

3.2.2 Procedure

The study is a cross-sectional self-report survey of a sample group of police officers. Phase Two involved a convenience sample of 97 available officers from 12 stations responding to five questionnaires; the PTSD Symptom Scale: Self-Report Version, the Ways of Coping Questionnaire, the Extent of service experience questionnaire, the

Multidimensional Scale of Perceived Social Support, and the duty-related stress questionnaire. These stations were situated in the areas stipulated in section 3.2.1 above.

The administration of the five questionnaires took place at a pre-determined time during a work shift to ensure a high response rate. The workday of the police officer is made up of two 12-hour shifts from 07h00 to 19h00, although this can vary by an hour at starting and finishing point. Officers that were available for approximately 30 minutes at the time completed the questionnaires right away. Some stations preferred to keep the questionnaires for a week to allow the officers to complete them in their own time. The time for the battery was approximately 25 minutes.

3.2.3 Measures

PTSD severity

The PTSD Symptom Scale: Self-Report Version (PSS-SR; Foa, Riggs, Dancu, & Rothbaum, 1993) was used to assess the PTSD symptom severity level of the police officer (See Appendix C). The PSS-SR is a 17 item self-report instrument corresponding to DSM-IV-TR PTSD criteria B through to criteria D. Using a sample of female assault victims the reliability and validity of this scale was assessed by Foa et al. (1993). As a measure of internal consistency, the Cronbach's alpha for the total score was .95. Alpha coefficients for the subscales of re-experiencing, avoidance, and arousal were .78, .80, and .82 respectively. Test-retest reliability for the overall severity score was .74 and for the subscales reexperiencing, avoidance, and arousal the reliability was .66 ($p < .01$), .56

($p < .05$), and .71 ($p < .01$), respectively. Concurrent validity was established against Impact of Events scale (IES), the Rape Aftermath Symptom Test (RAST), the State-Trait Anxiety Inventory (STAI), and Beck's Depression Inventory (BDI). The PSS-SR significantly correlated to all the measures: RAST total [$r = .81, p < .01$], the IES intrusion [$r = .81, p < .01$], the BDI [$r = .80, p < .01$], the STAI trait [$r = .56, p < .01$], the IES avoidance [$r = .53, p < .01$], and STAI state [$r = .52, p < .01$]. In terms of Convergent validity the PSS-SR was found to have a sensitivity of 62%, a positive predictive power of 100%, a negative predictive power of 82%, and overall correctly identified the PTSD status of 86% of the subjects. Items 1-5 assess criterion B, Reexperiencing of the traumatic event, items 6-12 assess criterion C, Avoidance of stimuli associated with the trauma, items 13-17 assess criterion D, symptoms of increased arousal that the individual may be experiencing. The PSS-SR has a minimum score of 0 (low severity) and a maximum of 51 (high severity) which is obtained by adding the scores on each item for that individual.

Stressor questionnaire

This list of top duty-related stressors, formulated in phase one of the research, was used to ascertain an up-to-date list of the top stressors in police work (see appendix B)

Extent of service experience questionnaire (demographic factors)

This questionnaire included the variables of; rank, years in police service, education level achieved, age, and gender (see Appendix D).

Coping strategies

The Ways of Coping Questionnaire (Folkman & Lazarus, 1988) was used to assess coping strategies (for sample questions see Appendix E). The questionnaire is a 66-item self-report questionnaire that assesses coping responses on 8 sub-scales. The response format for each subscale is a 4-point scale, 0: does not apply, 1: used somewhat, 2: used quite a bit, 3: used a great deal. The 8 subscales and their associated internal reliability Cronbach's alphas are Confrontive coping (alpha = .70), Distancing (alpha = .61), Self-controlling (alpha = .70), Seeking social support (alpha = .76), Accepting responsibility (alpha = .66), Escape-avoidance (alpha = .72), Planful problem-solving (alpha = .68), and Positive reappraisal (alpha = .79) (Folkman & Lazarus, 1988). Edwards and O'Neill (1998) found the reliability estimates for the subscales to range from .56 to .85 and averaged .73. The scale has face validity, as the strategies described are those that have been reported by Folkman and Lazarus to be the ones used in stressful situations. Studies carried out by Folkman and Lazarus give the scale construct validity (Folkman & Lazarus, 1988).

Social support

The Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988) was used to assess the officers' perceived quality of social support that they receive (see Appendix F). This instrument is a 12-item Likert-type self-report scale used to measure perceived social support from three sources, namely family, friends, and a significant other. It is scored by summing the scores for the individual items for the total, the higher the score the higher the perceived support. The scale has good reliability with

an internal consistency alpha of .91, and the authors assert good test-retest reliability. The scale also has good factorial validity and good concurrent validity, correlating with depression and coronary heart disease. The authors state good construct validity (Fischer & Corcoran, 1994).

3.2.4 Scoring

The major duty-related stressors that officers face were addressed through the summing of incidents from the stress questionnaire and listed from highest to lowest frequency. This was done to illustrate the wide-range and diverse nature of stressors that police officers face.

Each participant's score on each item of the PSS-SR were summed to obtain their total score. PTSD symptom severity was determined by the use of the raw scores.

Each item on the Extent of service experience questionnaire was weighted, scored, and summed to give each respondent an Extent of service experience score. The factors of years in the police service, rank, and education level were weighted to give a pronounced effect in their importance within the variable based on the literature. The actual numerical value of the weightings themselves was arbitrary. From the literature, years in the police service was deemed the most important of the three factors and was assigned a weighting of three. Rank was the second most important and given a weighting of two. Finally education was deemed the least important of the three, thus it was assigned a weighting

of one. For example if the officer had 15 years in the police service (score of 15×3), had reached the third level of rank (score is 3×2), and attained a tertiary education (score is 3×1), that officer's score on the questionnaire will be $45 + 6 + 3 = 54$. Age and Gender were not weighted. Age was scored using the actual age of the officer. Gender was assigned 0 for males and 1 for females.

Folkman and Lazarus (1988) state that Emotion- and Problem-focused styles of coping are both used in all situations of stress and this study does not seek to contest this in its investigation. What the present study investigated is which one is used the most and to what effect. The Ways of Coping Questionnaire has eight subscales, or factors, by which it measures Emotion- and Problem-focused styles of coping. The present study investigated the larger factors of Emotion- and Problem-focused styles of coping and for this reason the eight factors were incorporated into Problem- and Emotion-focused coping from the given descriptions in Folkman and Lazarus (1988). Problem-focused coping comprised confrontive coping (items 6, 7, 17, 28, 34, and 46), accepting responsibility (items 9, 25, 29, and 51), escape-avoidance (items 11, 16, 33, 40, 47, 50, 58, and 59), and planful problem solving (items 1, 26, 39, 48, 49, and 52). Emotion-focused coping comprised distancing, (items 12, 13, 15, 21, 41, and 44), self-controlling (items 10, 14, 35, 43, 54, 62, and 63), seeking social support (items 8, 18, 22, 31, 42, and 45), and positive reappraisal (items 20, 23, 30, 36, 38, 56, and 60). Items 2, 3, 4, 5, 19, 24, 27, 32, 37, 53, 55, 57, 61, 64, 65, and 66 are not scored by Folkman and Lazarus (1988) and were not scored in this study. The Ways of Coping Questionnaire therefore

yielded scores for each sub-scale that were totalled and arranged into one of the two larger scales of coping: Problem-focused or Emotion-focused coping.

Each participant received a score on the Multidimensional Scale of Perceived Social Support by summing all the items using their value in the questionnaire. A higher total raw score corresponds to higher perceived support for that officer.

3.2.5 Analysis

The relationships of the predictor variables to the outcome variable of PTSD symptom severity were formed in Chapter 1 and can be diagrammatically represented by Figure 1 below with the five predictor variables each having an effect on PTSD symptom severity.

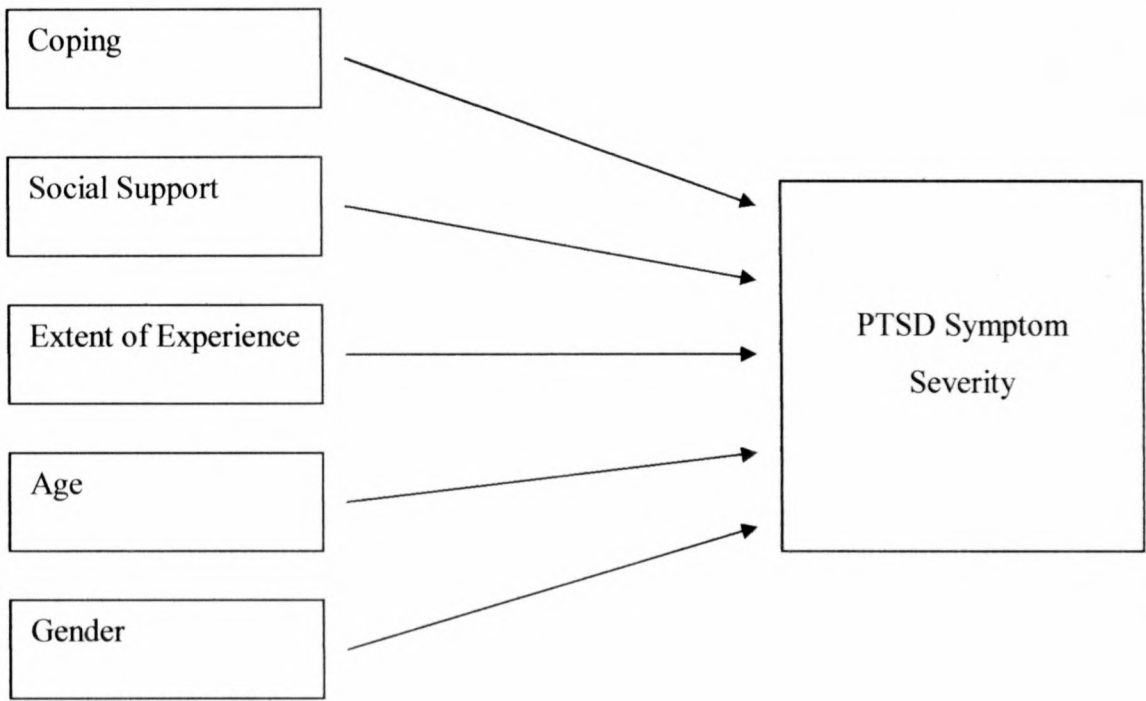


Figure 1. Relationship of the predictor variables to the outcome variable

A regression model was formed apriori from the literature and took the form of the equation below.

$$\text{PTSD Symptom Severity} = \beta_0 + (\beta_1 \text{Problem-focused coping}) + (\beta_2 \text{Emotion-focused coping}) + (\beta_3 \text{Perceived social support}) + (\beta_4 \text{Extent of service experience}) + (\beta_5 \text{Age}) + (\beta_6 \text{Gender})$$

β_0 is the constant

β_1 is the coefficient for Problem-focused coping

β_2 is the coefficient for Emotion-focused coping

β_3 is the coefficient for Perceived social support

β_4 is the coefficient for Extent of service experience

β_5 is the coefficient for Age

β_6 is the coefficient for gender

The data were analysed using the Statistical Package for the Social Sciences (SPSS) student version 9. The correlation matrix was examined for collinearity and multiple regression analysis was used to examine the effects of the resulting five independent variables (Problem- and Emotion-focused coping, Perceived social support, Extent of service experience, and Gender) on the dependent variable (PTSD symptom severity).

The independent variables were entered into the regression equation using Hierarchical regression entry in five separate blocks, one for each variable. These blocks were in order of importance based on the prior literature. The order of block entry was Problem-focused coping, Emotion-focused coping, Perceived social support, Extent of service

experience, and Gender. Descriptive statistics tables, Model summary tables, and Model parameters were produced.

The regression model was then assessed in terms of goodness of fit and in terms of generalisability. From the statistical analysis and discussion thereof, conclusions about each variable's effect on PTSD symptom severity were drawn from the model. From the initial model and its analysis an alternate model was formed and tested.

3.3 *Ethical considerations*

Police officers were informed before the administration of the questionnaires of the aims of the study and that participation and completion of the questionnaires were entirely on a voluntary basis. They were assured of anonymity and confidentiality of their results.

They were also informed that the study was not, or does not form any part of an internal assessment, thus the personal information given by them will in no way have any affect on their position within the SAPS. They were asked to complete a consent form (see appendix G) that accompanied the questionnaires, which had all the information hitherto explained in written form. Upon completion the officers themselves, to assure them that only the researcher has access to the raw data, were asked to place the questionnaires in a sealed envelope and return them to the researcher.

3.4 Conclusion

This chapter reviewed the research design, procedure, measurement, and ethical considerations in the data gathering stage of the present research. The following chapter consists of results and statistical analysis thereof.

Chapter Four:

4. Results

4.1 Stressful duty-related situations

In phase one the Duty-related stressful situations questionnaire (see Appendix B) was formed and later used in phase two. The construction of the questionnaire allowed for research into what duty-related stressful situations officers in the sample experienced whilst on duty. The reason for the inclusion of this data collection in the study was to illustrate the wide variation of stressful situations that officer's face in their job. The situation list was considerably comprehensive. The full 53 ranked situations list from most to least experienced can be viewed in Appendix H.

The hierarchy of top ten situations show the wide variation in stressors that face police personnel. Of the sample of 97 officers, 86 (88.7%) investigated robberies. House breaking was investigated by 82 (84.5%) of the sample, as was domestic violence. Shortage of manpower was experienced by 79 (81.4%) of the sample, as was lack of logistical equipment. Low salary was experienced by 77 (79.4%) of the sample. Seeing an assault victim was experienced by 75 (77.3%) of the sample. Alcohol and drug related crimes were also investigated by 75 (77.3%) of the sample. A shooting incident was experienced by 74 (76.3%) of the sample and laziness of other officers was similarly experienced by 74 (76.3%) of the sample.

There are numerous types of stressors that rank in the top ten. The stressors range from laziness of officers to Domestic violence to alcohol and drug related violence. The list serves to provide up to date evidence for the myriad of stressful situations under which the police work. Gulle et al. compiled a similar list in 1998. What is also of interest from the results is the number of officers that have experienced the murder of a colleague. Appendix H shows that 48 officers, 49.5% of the sample, have experienced the murder of a colleague. This is very high. Further comparative investigation both nationally and internationally needs to be done to verify just how high this figure actually is.

4.2 *Regression model 1*

4.2.1 *Multiple Regression Analysis*

The Casewise Diagnostics table (see Table 1, Appendix I) examines the data for outliers that may have undue influence in the model. SPSS identified two cases that were outside the stipulated +2 to -2 ranges for standardised residuals. These are case numbers 93 and 96 with standardised residual values of 2.253 and 2.531 respectively. With a closer examination of the Case Summary Table (see Table 2, Appendix I), the Cook's distance, Mahalanobis Distance, and the Centred Leverage statistic show that these outliers do not exert any undue influence on the model.

The Histogram of the Frequency and the Regression Standardised Residuals (see Appendix J) shows the distribution of residuals to be quite normal but with a slight skewness to the left. The linearity of the residuals is seen in the normal P-P plots.

Table 1 shows the Pearson's correlation matrix for the predictor variables and the outcome variable, PTSD symptom severity. The variables with significant relationships with PTSD symptom severity were Perceived social support and Problem-focused coping. Social support had a correlation coefficient of $-.453$ ($p < .01$). Problem-focused coping had a correlation coefficient of $.410$ ($p < .01$). The other variables did not have significant correlations with PTSD symptom severity.

Table 1

Correlation Matrix for Regression Model 1 (N = 97)

		PTSD score	Problem- focused coping	Emotion- focused coping	Perceived Social Support score	Extent of Service Experience score	Age of officer	Gender of officer
PTSD score	Pearson Correlation Sig. (2 tailed)	1.000 .	.410 .000	.070 .497	-.453 .000	.129 .208	.173 .090	.007 .944
Problem- focused coping	Pearson Correlation Sig. (2 tailed)	.410* .000	1.000 .	.750 .000	.045 .665	-.138 .179	-.017 .868	.248 .014
Emotion- focused coping	Pearson Correlation Sig. (2 tailed)	.070 .497	.750* .000	1.000 .	.229 .024	-.323 .001	-.162 .114	.197 .053
Perceived Social Support score	Pearson Correlation Sig. (2 tailed)	-.453* .000	.045 .665	.229 .024	1.000 .	-.201 .048	-.156 .126	.191 .062
Extent of Service Experience score	Pearson Correlation Sig. (2 tailed)	.129 .208	-.138 .179	-.323 .001	-.201 .048	1.000 .	.870* .000	-.177 .082
Age of officer	Pearson Correlation Sig. (2 tailed)	.173 .090	-.017 .868	-.162 .114	-.156 .126	.870* .000	1.000 .	-.086 .404
Gender of officer	Pearson Correlation Sig. (2 tailed)	.007 .944	.248 .014	.197 .053	.191 .062	-.177 .082	-.086 .404	1.000 .

* $p < .01$

Table 1 also shows the intercorrelations between all predictor variables. Age and Extent of service experience significantly correlate with each other ($r = .870$, $p < .01$). With further examination of the Collinearity diagnostics table (Appendix K) it is evident that Extent of service experience and Age share variance. This may be expected as the longer an officer has been in the SAPS, the older he or she is likely to be. Extent of service experience loads 65% of its variance on to eigenvalue 7 and Age loads 95% of its variance on eigenvalue 7. The large Pearson's r correlation between Age and Extent of service experience ($r = .870$, $p < .01$) shows high collinearity between the two variables. The

value of this correlation is unacceptable for a reliable analysis of the data (Field, 2000). Age was deemed less important in the regression model than Extent of service experience variable because a higher age is implicit in a longer time in the service, which is a factor in the service experience variable. For the two previous reasons it was decided that the variable Age should be excluded from the model and further analyses.

From Table 1 it can also be seen that Emotion-focused coping and Problem-focused coping significantly correlate with each other ($r = .750$, $p < .01$). The variables share a degree of covariance with 68% and 96%, respectively; on eigenvalue 6 (see Appendix K). Since they are both forms of coping this can be expected. From Table 3, though, the VIF values for all variables are well below 10, the average VIF is close to 1, and the tolerance levels of all the variables are above 0.2. The values of these statistics show that the collinearity that is present does not excessively influence the model.

Table 2 shows the Model summary statistics R , R^2 , Adjusted R^2 , R^2 change, F change for all the models as they are entered into the regression model in each block. These statistics make it possible to have an initial examination of the contribution of each variable to the model.

Table 2

Model Summary for Regression Model 1

Change Statistics									
Block	R	R Square	Adjusted R Square	Std. Error of Estimate	R Square Change	F Change	df1	df2	Sig. F Change
A	.410	.168	.159	11.2283	.168	19.206	1	95	.000
B	.545	.298	.283	10.3731	.129	17.311	1	94	.000
C	.666	.444	.426	9.2797	.146	24.456	1	93	.000
D	.667	.445	.421	9.3229	.001	.141	1	92	.708
E	.667	.445	.414	9.3719	.000	.039	1	91	.844

A. Predictors: (Constant), Problem-focused coping score

B. Predictors: (Constant), Problem-focused coping score, Emotion-focused coping score

C. Predictors: (Constant), Problem-focused coping score, Emotion-focused coping score, Perceived social support score

D. Predictors: (Constant), Problem-focused coping score, Emotion-focused coping score, Perceived social support score, Extent of experience score

E. Predictors: (Constant), Problem-focused coping score, Emotion-focused coping score, Perceived social support score, Extent of experience score, Gender of Officer

F. Dependent Variable: PTSD score

In block A only the independent variable Problem-focused coping was included and this gave rise to a simple R of .410 and an R^2 of .168 and accounts for 16.8% of the variance in PTSD symptom severity scores. As this is the first block to be tested the R^2 Change statistic has the same value as the R^2 . The F Change statistic is 19.206 and is significant ($p < .01$). Therefore the addition of the first variable significantly contributes to the overall predictive power of the model.

With the addition of Emotion-focused coping into block B a multiple R of .5454 and an R^2 of .298 were achieved (29.8% of the total variance in PTSD symptoms is explained by

block 2). Emotion-focused coping accounts for 12.9% of the variance in PTSD symptoms seen in the R^2 Change statistic value of .129. The F change ratio is 17.311 and is significant ($p < .01$) therefore the ratio change in the block is significant and the addition of the second variable significantly contributes to the overall predictive power of the regression model.

With the further addition of Perceived social support, multiple R changes to .666 and the R^2 now has a value of .444 (44.4% of the total variance in PTSD is now explained by block C), which brings with it an R^2 Change statistic of .146. Therefore Perceived social support explains 14.6% of the variance in PTSD symptom severity scores. The F Change statistic value is 24.456 and is significant ($p < .01$). The ratio change in the block is significant. Therefore the addition of the third variable significantly contributes to the overall predictive power of the regression model.

The addition of Extent of service experience into the model, however, gives a different result. Multiple R is .667 and the R^2 is .445 (44.5% of the total variance in PTSD is explained by block D), which means the R^2 Change is only .001. Extent of service experience therefore only accounts for a further 1% of the change in PTSD symptom severity score variance. The F Change value is .141 ($p = .708$) showing the ratio change in the block is not significant and the addition of this forth variable does not significantly add to the overall predictive power of the regression model.

Finally, when Gender of the officer is added the final regression model 1 is complete. For the individual variable of Gender the result is similar to that of block D. Block E gives a multiple R of .667 and an overall R^2 of .445 which shows that the final regression model accounts for 44.5% of the total variance in PTSD symptom scores. However the R^2 Change from block D to block E is .000. By adding the variable Gender to the model, the model explains no extra variance. The F change value is .039 ($p = .844$), showing that the ratio change is not significant and that the addition of the fifth variable does not add significantly to the overall predictive power of the regression model.

The variables in combination in regression model 1 (Block E) do not significantly predict PTSD symptoms severity ($F = .039$, $df = 5,91$, $p = .844$), even though Problem-focused coping, Emotion-focused coping, and Perceived social support significantly contributed to the model on their own.

When looking at generalisability (cross validation) of the model to a larger population the Adjusted R^2 statistic for shrinkage is examined. In block E of Table 2 the R^2 and the Adjusted R^2 have values of .445 and .414 respectively. The two statistics are quite similar in value and therefore the model has adequate cross validation.

Table 3 shows the parameters of the final regression model 1. It reports the unstandardised variable coefficient β , standardised Beta, confidence intervals, partial and part correlations and collinearity statistics. The variable coefficients show each variable's individual contribution to the model. The confidence intervals show how reliable the

model is by giving an upper and lower boundary into which 95% of other samples should fall. Partial correlations are the relationship between each predictor variable and the outcome, controlling for the effects of the other predictors. The part correlations are the relationship between each predictor variable and the outcome, controlling for the effect that the other predictors have on the outcome (Field, 2000). The Collinearity statistics assist in assessing the assumption of no multicollinearity. Substituting through using the unstandardised Beta values from Table 3 the final regression model is produced and assessed.

Table 3
Model Parameters for all variables in Regression Model 1

Model	Unstandardised		Standardised Coefficients Beta	t	Sig	95% Confidence interval for β		Partial	Part	Collinearity Statistics	
	β	Std. Error				Lower Boundary	Upper Boundary			Tolerance	VIF
Constant	24.275	5.321		4.562	.000	13.705	34.845				
Problem-focused coping	.675	.120	.700	5.627	.000	.437	.913	.508	.439	.394	2.540
Emotion-focused coping	-.353	.130	-.353	-2.718	.008	-.611	-.095	-.274	-.212	.362	2.762
Perceived Social Support	-.300	.064	-.394	-4.717	.000	-.426	-.173	-.443	-.368	.872	1.146
Extent of Service Exp	1.471E-02	.043	-.029	-.343	.732	-.070	.100	.036	.027	.845	1.184
Gender	-.451	2.279	-.016	-.198	.844	-4.978	4.076	-.021	-.015	.888	1.126

a. Dependent Variable: PTSD symptom severity

PTSD Symptom Severity = 24.275 + (0.675Problem-focused coping) + (-0.353Emotion-focused coping) + (-0.300Perceived social support) + (0.015Extent of service experience) + (-0.451Gender)

In assessing the model, the t values and their significance levels are investigated. These inform us whether the variable is indeed significantly contributing to the model or not. The Problem-focused coping variable as is seen in Table 3, has a coefficient of 0.675 (standard β value = .700) its t value is (91) = 5.627, ($p < .01$). This variable has a large contribution to the model, which agrees with the Table 2 analyses. Its large significant t value indicates that the result is very unlikely to have happened by chance alone. The upper and lower confidence intervals for this model are .913 and .437 respectively. They are quite close together and they do not pass through zero indicating that the model is representative of 95% of other samples when this variable is added to the model. The variable's unique relationship to PTSD symptom severity shown in the part correlation is the strongest of all the predictor variables at a value of .439.

Emotion-focused coping has a coefficient of -.353 (standard β value = -.353) and its t value is (91) = -2.718, ($p < .05$). This variable's relationship in the model is negative and significantly contributes to the model since its t value is significant, which also agrees with the Table 2 analyses. This again indicates that the result is very unlikely to have happened by chance alone. The upper and lower confidence intervals for this model, when Emotion-focused coping is added, are -.095 and -.611 respectively. The values are close together in value and do not go through zero, so the model is significantly representative when this variable is added. The part correlation of this variable is the second largest negative correlation with a value of -.212.

Perceived social support has a coefficient $-.300$ (standard β value = $-.394$), indicating that it too has a negative relationship with the outcome variable. With a t value of $(91) = -4.717$, ($p < .01$), Perceived social support indeed has a strong relationship with the outcome variable. The statistic agrees with the Table 2 analyses, and with its corresponding significance level indicating that the result is very unlikely to have happened by chance alone. The upper and lower confidence intervals for this model, when Perceived social support is added, are $-.173$ and $-.426$ respectively. Both limits are close together and they do not pass through zero signifying that the model is representative of 95% of other samples when this variable is added. The part correlation of Perceived social support with PTSD is $-.368$, which is the strongest negative relationship.

Extent of service experience has a coefficient of -0.015 (standard β value = $-.029$), showing its negative relationship with the outcome variable. Its t value $(91) = -.343$, ($p = .732$) on the other hand, shows that this relationship is not very strong, as the t value is not significant. The upper and lower confidence intervals, when Extent of service experience is added, are $.100$ and $-.070$ respectively. These limits, although quite tight in their range, pass through zero, which suggests that when this variable is added to the model it is not representative of 95% of other samples. The part correlation with PTSD symptoms for this variable is $.027$, showing that the variable does not have a strong relationship with the outcome variable, which agrees with the coefficient and the t value significance levels.

The variable of Gender has a negative relationship with the outcome variable with a coefficient of $-.451$ (standard β value = $-.016$). Its t value (91) = $-.198$, ($p = .844$) shows that this relationship is not significant and has little effect on the outcome variable. The upper and lower confidence intervals for the model, when Gender is added, are 4.076 and -4.978 respectively. These limits have a wide range and pass through zero, which indicates that when this variable is added to the model it is not representative of 95% of other samples. The part correlation for this variable is $-.015$. Gender does not have a strong relationship with PTSD symptom severity; the t value significance levels expound this.

Although Problem-focused coping, Emotion-focused coping, and Perceived social support were significant on their own, the final regression model does not significantly predict PTSD symptom severity ($F = .039$, $df = 5,91$, $p = .844$). Accordingly, from the findings of the present results, an alternate model is proposed and tested.

4.3 Regression model 2

4.3.1 Multiple regression analysis

The alternate regression model is presented below derived from the findings of regression model 1.

$$\text{PTSD Symptom Severity} = \beta_0 + (\beta_1 \text{ Overall Coping}) + (\beta_2 \text{ Perceived social support}) + (\beta_3 \text{ Education level}) + (\beta_4 \text{ Years in service}) + (\beta_5 \text{ Rank})$$

The Casewise Diagnostics Table (see Table 1, Appendix M) examines the data for outliers that may have undue influence on regression model 2. SPSS identified four cases that were outside the stipulated +2 to -2 ranges for standardised residuals. These are case numbers 38, 51, 93, and 96, with standardised residual values of 2.784, 2.573, 2.011 and 2.328 respectively. With a closer examination of the Case Summary Table (see Table 2, Appendix M), the Cook's distance, Mahalanobis Distance, and Centred Leverage statistic show that these outliers do not exert any undue influence on the model.

Table 4 shows the Pearson's correlation matrix for the five new predictor variables and the outcome variable, PTSD symptom severity. The variables with significant relationships with PTSD symptom severity were Perceived social support and Overall coping score. Perceived social support had a correlation coefficient of $-.453$, ($p < .01$) which is the same as its value for the first model, and is significant. Overall coping had a correlation coefficient of $.260$ ($p < .05$) and is significant. The other variables did not have significant correlations with PTSD symptom severity. Years in service had a correlation coefficient of $r = .157$ ($p = .124$). Education level had a correlation coefficient of $r = -.100$ ($p = .332$). Rank had a correlation coefficient of $r = .109$ ($p = .286$).

Table 4

Correlation Matrix for Regression Model 2

		PTSD symptom score	Overall coping score	Perceived social support score	Education level score	Years in service	Rank
PTSD symptom	Pearson Correlation	1.000	.260	-.453	-.100	.157	.109
	Sig. (2tailed)	.	.010	.000	.332	.124	.286
Overall coping	Pearson Correlation	.260	1.000	.144	-.361	-.223	-.283
	Sig. (2tailed)	.010	.	.159	.000	.028	.005
Perceived social support	Pearson Correlation	-.453*	.144	1.000	-.011	-.212	-.182
	Sig. (2tailed)	.000	.159	.	.911	.038	.075
Education level	Pearson Correlation	-.100	-.361*	-.011	1.000	.170	.206
	Sig. (2tailed)	.332	.000	.911	.	.097	.043
Years in service	Pearson Correlation	.157	-.223	-.212	.170	1.000	.893
	Sig. (2tailed)	.124	.028	.038	.097	.	.000
Rank	Pearson Correlation	.109	-.283	-.182	.206	.893*	1.000
	Sig. (2tailed)	.286	.005	.075	.043	.000	.

* $p < .01$

Table 4 also shows the intercorrelations of all predictor variables. Rank and Years in service significantly correlate with each other ($r = .893$, $p < .01$). Examination of the collinearity diagnostics Table (Appendix N) shows that the two variables share variance on dimension 5. The weightings are Years in service .83 and Rank .90. This may be expected as the longer an officer is in the police service the more likely that he or she will receive a higher rank. The large Pearson's r correlation between Years in service and Rank ($r = .893$, $p < .01$) shows a high collinearity between the two variables. The value of this correlation is unacceptable for a reliable analysis of the data (Field, 2000). It was decided that because of the high value of Pearson's r between the two variables the

variable Rank be excluded from further analyses of the second model. With a higher rank an officer tends to be more occupied with increasing levels of administration duties and is less exposed to events that the present study investigates. Therefore Years in service took preference over Rank to stay in the model.

Table 5 shows the model summary for regression model 2. The statistics in the table make it possible to have an initial examination of the contribution of each variable to the new model as they are entered into the model.

Table 5
Model Summary for Regression Model 2

Change Statistics									
Block	R	R Square	Adjusted R Square	Std. Error of Estimate	R Square Change	F Change	df1	df2	Sig. F Change
A	.260	.068	.058	11.8880	.068	6.883	1	95	.010
B	.560	.313	.293	10.2574	.246	33.604	1	94	.000
C	.560	.313	.291	10.3106	.000	.032	1	93	.857
D	.575	.330	.301	10.2379	.017	2.326	1	92	.131
A. Predictors: (Constant), Overall coping score									
B. Predictors: (Constant), Overall coping score, Perceived social support									
C. Predictors: (Constant), Overall coping score, Perceived social support, Education level attained									
D. Predictors: (Constant), Overall coping score, Perceived social support, Education level attained, Years in service									
E. Dependent Variable: PTSD score									

In Table 5, Block A shows that the independent variable Overall coping score results in a simple R of .260 and an R² of .068, therefore accounting for 6.8% of the variance in

PTSD symptom severity scores. The F Change statistic is 6.883 ($p < .05$). The addition of the first variable significantly contributes to the predictive power of regression model 2. When Perceived social support is added to the regression model it results in a simple R of .560 and an R^2 of .313 and accounts for 31.3% of the variance in PTSD symptom severity scores. Perceived social support accounts for 24.6% of the variance in the outcome variable. The F Change statistic is 33.604 ($p < .01$), therefore the addition of the second variable significantly contributes to the overall predictive power of regression model 2.

A new variable, Education level attained, is added into the model and gives rise to a simple R of .560 and an R^2 of .313, and accounts for 31.3% of the variance in PTSD symptom severity scores. Education level attained does not account for any variance change in the outcome variable. The F Change statistic is .032, but is not significant ($p = .857$). Therefore the addition of the Education level variable does not significantly contribute to the overall predictive power of regression model 2.

Similarly, when the variable, Years in police service, is added into the model there is also no significant contribution to the predictive power of regression model 2. The F change statistic value is 2.326 but is not significant ($p = .131$). The R of the variable is .575 and the R^2 is .330, showing that by adding this variable to the regression model it now accounts for 33% of the variance in PTSD symptom severity scores. The variable on its own only explains 1.7% change in variance in the outcome variable.

Table 6
Parameters for All Variables in Regression Model 2

Model	Unstandar- dis ed	Std. Error	Standar- dised Coeffici- ents Beta	t	Sig	95% Confidence interval for β		Partial	Part	Collinearity Statistics	
	β					Lower Boundary	Upper Boundary			Toler- ance	VIF
Constant	19.897	8.206		2.425	.017	3.598	36.195				
Overall coping score	.189	.049	.359	3.842	.000	.091	.286	.370	.328	.831	1.203
Perceived Social Support	-.361	.067	-.476	-5.411	.000	-.494	-.229	-.491	-.462	.942	1.062
Education level	3.368E-02	2.206	.001	.015	.988	-4.348	4.415	.002	.001	.858	1.165
Years in service	.224	.147	.137	1.525	.131	-.068	.515	.157	.130	.907	1.103

a. Dependent Variable: PTSD symptom severity

Substituting through using the unstandardised Beta values from Table 6 into the second regression model the following model is produced.

$$\text{PTSD Symptom Severity} = 19.897 + (0.189\text{Overall coping}) + (-0.361\text{Perceived social support}) + (0.34\text{Education level}) + (0.224\text{Years in service})$$

The Overall coping variable has an unstandardised beta coefficient of .189 (standard β value = .359) its t value is (92) = 3.842, ($p < .01$). The variable's t value is large and significant ($p < .01$), indicating that this result is very unlikely to have happened by chance alone. The upper and lower confidence intervals for this model are .286 and .091 respectively. They are quite close together and they do not pass through zero, indicating that the model is representative of 95% of other samples when this variable is added to

the model. The variable's unique relationship to PTSD symptom severity shown in the part correlation is .328, which is the largest positive relationship of the variables.

Perceived social support has an unstandardised beta coefficient of -.361 (standard β value = -.476), its t value is (92) = -5.411, ($p < .01$). The relationship is a beneficial factor in PTSD symptom severity. The variable's t value is large and significant ($p < .01$), indicating that this result is very unlikely to have happened by chance alone. The upper and lower confidence intervals for the model at this point are -.229 and -.494 respectively. They are quite close together and they do not pass through zero indicating that the model is representative of 95% of other samples when this variable is added to the model. The variable's unique relationship to PTSD symptom severity shown in the part correlation is at a value of -.462, which indicates that Perceived social support has the largest beneficial relationship with PTSD symptom severity.

Education level attained has an unstandardised beta coefficient of 0.034 (standard β value = .001), its t value is (92) = .015, ($p = .988$). The relationship is not significant and therefore the variable has little affect on PTSD symptom severity. The upper and lower confidence intervals for this model are 4.415 and -4.348 respectively. They are not close together and they pass through zero indicating that the model is not representative of 95% of other samples when this variable is added to the new regression model. The variable's unique relationship to PTSD symptom severity shows this further. The part correlation is at a value of .001, which indicates that the variable has little effect on the outcome variable.

Finally, Years in service exhibits a similar relationship to the outcome variable as Education level attained. Although the unstandardised beta coefficient is $r = .224$ (standard β value = .137) and is larger than the coefficient of Overall coping, its t value is not significant ($92 = 1.525$, $p = .131$). The upper and lower confidence intervals for this variable when added show this further at levels of .515 and -.068 respectively. Although they are close together they pass through zero indicating that the model is not representative of 95% of other samples when this variable is added to the new regression model. The variable's unique relationship to PTSD symptom severity is .130, which indicates that the variable has little effect on the outcome variable.

Although Overall coping, and Perceived social support were significant on their own, the second regression model with all the variables included, does not significantly predict the outcome variable, PTSD symptoms severity, ($F = 2.326$, $df = 4,92$, $p = .131$).

From the results of regression model 1 and subsequent results of regression model 2 the variables Problem-focused coping, Emotion-focused coping, and Perceived social support only should be included in a regression model predicting PTSD symptom severity amongst the SAPS. Other variables did not contribute significantly to either regression model 1 or 2 and therefore should not be included in future research. The combined coping variable, Overall coping, that was thought to predict PTSD symptom severity better than the separate Problem-focused coping and Emotion-focused coping variables, was found not to be as good a predictor, only accounting for 6.8% of the variance in PTSD symptom severity scores. The inclusion of the three variables of Problem-focused

coping, Emotion-focused coping, and Perceived social support into a model on their own results in a significant regression model that accounts for 44.4% of the variance in PTSD symptom severity scores and shows good cross-validation with values of the R^2 and the Adjusted R^2 of .444 and .426 respectively (see Table 2, block C).

Chapter Five

5. Discussion and Implications

5.1 Discussion

The aim of the study manifested itself in an interest in South Africa's high crime rate and the consequences that it has on its police members. The effect that high crime rates and exposure to crime and traumatic experiences have on police officers has been previously documented (Patterson, 2003; Stephens & Long, 1999; Violanti, 1992). The effects range from high levels of stress to cases of PTSD. Gulle et al. in their 1998 study of dangerous and stressful situations in the SAPS, document the many different situations that the SAPS face whilst on duty. The vastly diverse types of stressful duty-related situations that officers experience have been verified and updated in the present study. The results show that indeed there is a vast range of stressful and traumatic situations that SAPS members' experience, such as witnessing a murder or domestic violence, or shooting a suspect.

The coping methods used by police officers to cope with stress and traumatic experiences and the factors that can either be beneficial against or enhance the effects of PTSD symptoms were studied through the use of Bivariate correlation, multiple regression analysis, and the subsequent formulation of a best fit regression model.

A regression model was formed from prior literature and was investigated for its suitability to predict the PTSD symptom severity in officers. The model included the variables Problem-focused coping, Emotion-focused coping, Perceived social support, Age, Gender, and Extent of service experience of the officer which comprised the factors education level, rank, and time in the service. Hypotheses were formed and tested from findings within the literature. The hypotheses that Problem-focused coping has a beneficial effect on PTSD symptom severity and Emotion-focused coping does not, was formed in agreement with the findings of Violanti (1992), Burke (1998), and Kopel (1996). The testing of the hypothesis also served to disprove the findings of Patterson (2003), whom found that Problem-focused coping did not have beneficial effects on the symptoms severity in PTSD. The hypothesis that Perceived social support has a beneficial affect on PTSD symptom severity was formed on the general agreement that this type of support mediates stress symptoms. The findings of McFarlane (1998), Patterson (2003), and Stephens and Long (1999), are consistent to this. Contrary to the findings of Kopel (1996), who found demographic variables to have no affect on PTSD symptoms, but in agreement with the findings of Stephens and Long (1999), and Van Niekerk (1997), the hypotheses that more experience, a higher age, and the male gender will have beneficial effects on PTSD symptom severity were formed.

5.1.1 PTSD symptom severity

The findings of the study indicate that the mean score for PTSD symptom severity of the sample was 15.124 points (see Appendix L) out of a maximum score of 51 points. In the

scoring method set down by Foa et al. (1993), this level is rated as 'moderate symptom severity'. On closer examination of the sample 19 (19.59%) participants fell into the 'moderate to severe symptom severity' range (21 – 35 point), and 9 (9.28%) participants fell into the 36 points and upwards range classed as a 'severe symptom severity'. Whilst not diagnostic cut-off points, these ranges give some idea of the extent to which the sample of police officers experience PTSD symptoms, and a clue to the likelihood of present (and future) PTSD diagnosis. If the severe symptom severity range is used as an indicator of possible present or future development of PTSD caseness it can be said that 9.28% are at risk. The severe symptoms level is lower than levels of case PTSD found in a sample of police officers in Ohio, United States by Robinson et al. (1997) which was at a level of 13%, but higher than the 7% level found by Carlier et al. (1997) in a sample of Dutch police officers. It is also higher than the 5% of high stress levels found by Renck et al. (2002) in Swedish police officers after a traumatic rescue operation. Kopel (1996), found a level of 28.4% of case PTSD in a Brixton Flying squad in Johannesburg, and Kopel and Friedman (1997), found a very high case rate of 49% in an Internal Stability Unit that policed the black townships in Johannesburg and Pretoria. The previous two levels of caseness are considerably higher than the present study's level of severe symptom severity and the specific violent nature of the specialised units in the samples used in these studies may explain this. On the other hand Peltzer (2001), found a similar level of 9% in his study of a similar sample of police officers in the Limpopo Province. The present study investigated PTSD symptom severity levels of police officers.

Symptom severity is an integral part of the diagnosis of PTSD and a possible precursor for future development of the disorder therefore the comparison of the levels of caseness and symptom severity gives insight into the potential future levels of PTSD caseness within the sample. If the severe severity levels (9.28%) are indeed taken as levels of possible future caseness it can be said that the findings agree with the international levels and one South African level. Other South African studies (Kopel, 1996; Kopel & Friedman, 1996) suggest that this level is somewhat low. The most likely explanation for this is that the sample population is different. The variables investigated in the present study are other potential reasons for the disparity in the levels.

5.1.2 *Bivariate relationships*

Problem-focused coping had a positive significant correlation with PTSD symptom severity, which is contrary to hypothesis 1. The findings of the present study serve to validate the findings of Patterson (2003), who found that Problem-focused coping did not relieve PTSD symptoms. The sample studied is generally viewed as more problem-orientated thinkers due to the nature of police work. Therefore this finding comes somewhat as a surprise. Hypothesis 1, therefore, which states that Problem-focused coping has a significant negative correlation with PTSD symptom severity, is rejected.

Emotion-focused coping, as was expected from the literature reviewed, did indeed have a small positive correlation with PTSD symptom severity. The literature reviewed supports the result. Violanti (1992), Burke (1998), and Kopel (1996) suggest that Emotion-focused

coping serves to exacerbate PTSD symptom severity. The correlation in the present study between Emotion-focused coping and PTSD symptom severity though was not significant ($\rho = .497$). The relationship was expected but the high prevalence of this type of coping within the sample of police was not expected. The mean for Emotion-focused coping (see Appendix L) was higher than the mean for Problem-focused coping. The result shows that the police in the sample used more Emotion-focused coping strategies, such as accepting sympathy and understanding from others, than Problem-focused coping strategies. This again is unexpected. The result suggests that Emotion-focused coping does not affect PTSD symptom severity significantly. Hypothesis 2 that states that Emotion-focused coping has a significant positive correlation with PTSD symptom severity was rejected on the evidence that it is not a significant relationship.

Perceived social support was the only predictor variable with which its corresponding hypothesis was accepted. Perceived social support had a negative and significant correlation with PTSD symptom severity. The relationship was expected given the evidence in prior literature. The result means that the more social support that the officer perceived himself or herself to have the less severe were his or her PTSD symptoms. The relationship serves to reinforce the findings of McFarlane (1998), Patterson (2003), and Stephens and Long (1999). They reported that Perceived social support decreases the severity of symptoms of PTSD. Hypothesis 3 that states that Perceived social support has a significant negative correlation with PTSD symptom severity was accepted.

Extent of service experience of the officer did not play a significant role in the alleviation of symptom severity. The variable had a weak positive correlation that was not significant ($\rho = .208$). The result agrees with the findings of Kopel (1996), who did not find any significant relationship between demographic variables and PTSD caseness. Hypothesis 4 that states that Extent of service experience has a significant negative correlation with PTSD symptom severity was rejected.

Age of the officer had a non-significant ($\rho = .09$) positive relationship with PTSD symptom severity. Hypothesis 5 that states that Age has a significant negative correlation with PTSD symptom severity was rejected. The rejection of this hypothesis supports the findings of Kopel (1996).

Gender of the officer had a non-significant ($\rho = .944$), weak, positive relationship. The finding confirms the results of Kopel (1996). Hypothesis 6, that the male gender will have a significant negative correlation with PTSD symptom severity was therefore rejected on the evidence that it was not a significant relationship.

5.1.3 Regression Model 1

5.1.3.1 Unexpected results

Regression model 1 shows the relationship of the variables when they are all considered together. Although the model shows that most of the variables affect PTSD symptom

severity in a similar fashion as their simple correlations the model also shows some results that were unexpected.

The results in the simple correlations show that Emotion-focused coping had a positive non-significant relationship with PTSD symptom severity. When this form of coping is entered into regression model 1 with other variables the relationship is negative and significant, which further supports the findings of Patterson (2003). The result in the regression model shows that when used in conjunction with other variables this style of coping is beneficial to the officer.

Gender was reported to have a positive non-significant relationship with PTSD symptom severity in the simple correlation matrix. But in the model with other variables in play this relationship changes direction to a negative non-significant one.

5.1.3.2 Contributions to regression model 1

The model itself must be an accurate representation of the outcome variable. Therefore each predictor variable must contribute to the model to be included.

Problem-focused coping accounted for the highest amount of the variance in PTSD symptom severity scores at a level of 16.8%. Perceived social support accounts for 14.6% of the variance in PTSD symptom severity scores. Emotion-focused coping accounted for 12.9% of the variance in PTSD symptom severity scores. Extent of service experience

can only explain 1% of the variance in PTSD symptom severity scores. Gender does not explain any of the variance in PTSD symptom severity scores. From the above values the largest contributors to the variance can be seen. Problem-focused coping, Perceived social support and Emotion-focused coping explain most of the variation in PTSD symptom severity scores. Extent of service experience and Gender do not account for large proportions of the variance and their inclusion into regression models predicting PTSD symptom severity amongst the SAPS in the future is not justified.

5.1.3.3 Proposed alternate model

The model as a whole shows adequate cross-validation as seen in the adjusted R^2 statistic, so there is little shrinkage in the predictive power of the model if it had been derived from the population. But the full Regression Model 1 is not statistically significant ($F = .097$, $df = 6,90$, $p = .757$). Therefore the model needed revision.

The inherent problem of covariance in the variables of Extent of service experience and Age, and Problem-focused and Emotion-focused coping leads to the further consideration of modifying the model. It has been noted that Extent of service experience and Age covary and as a result it may be beneficial in future to separate the Experience variable leaving education level, years in service, and rank as variables in their own right and not combine them under a weighting system. On the other hand, it may also be appropriate to exclude certain variables altogether in future research to minimise collinearity. By excluding either the factor Years in service or the variable Age, the model may have less

collinearity. The covariation of the two coping variables suggests that maybe they should not be separated. Instead their combination into a single variable that examines the process of coping in its entirety may be beneficial to later research. The variable could be used to investigate how an officer actually copes on the whole with stress and PTSD symptoms. Findings in the raw data show that some officers had low Problem-focused coping and Emotion-focused coping scores, which implies a poor overall method of dealing with stress and trauma.

By examining each variable's relationship with the outcome variables, their significance levels, their individual contribution to the model, and the problems of certain variables just discussed, regression model 2 was put forward for testing. Regression model 2 was tested and compared to regression model 1 to observe which model predicted the outcome variable more efficiently.

5.1.4 Regression model 2

It was observed in the analysis of regression model 2 that the variables of Education level attained and Years in the police service did not significantly contribute to the model.

Education level had a very small negative simple correlation with the outcome variable ($r = -.100$, $p = .332$), which if significant, would mean that the higher the level of education attained by an officer the less severe the symptoms of PTSD he or she will display.

However, in addition to not having a significant simple correlation with the outcome variable, when included into regression model 2 with other variables, Education level

changed direction in its relationship and had a positive relationship with the outcome variable suggesting that higher education has an exacerbating effect on the outcome variable. The variable also did not explain any variance in PTSD symptom severity scores at all. The result means that no matter what level of education an officer receives it will not affect the severity of PTSD symptoms that the officer may display. The variable's lack of contribution to the regression model, its small beta coefficient, and its non-significant t value suggests that it should not be included in a regression model predicting PTSD symptom severity amongst the SAPS in the future. The possible reason for this is that education level does not dictate the amount of, or type of traumatic incidents that an officer faces whilst on duty. Every officer starts at the bottom rank and is exposed to varying types of incidences no matter what level of education he or she attained.

Years in the police service had a non-significant positive simple correlation with PTSD symptom severity ($r = .157$, $p = .124$) therefore the time spent in the police service does not affect the severity of symptoms of PTSD that an officer will display. The variable only explained 1.7% of the variance in PTSD symptom severity scores and its inclusion in a model that predicts PTSD symptom severity in the SAPS is not justified in future research. A possible reason for the result is that although an officer may spend a long time in the police service he or she may not witness many traumatic incidences before they are promoted from the streets. Another possible reason is that officers may form adequate support networks inside and outside of the police service, enabling them to cope more effectively with the effects of trauma.

The variable Overall coping in regression model 2 was formed from the combination of Problem-focused coping and Emotion-focused coping variables from Regression Model 1. The variable had a significant positive simple correlation with the outcome variable but was small ($r = .260$, $p < .05$). In the regression model with other variables, Overall coping still had a significant role to play in the prediction of the outcome variable. The positive correlation that Overall coping has with PTSD symptom severity suggests that when the two coping variables are combined Problem-focused coping may influence the variable more than Emotion-focused coping. The reason for this may be that the positive correlation that Problem-focused coping has with the outcome variable in Regression Model 1 is stronger than the negative correlation of Emotion-focused coping. In Regression Model 1 Problem-focused coping has a simple correlation with the outcome variable of $r = .410$, ($p < .01$), a beta coefficient of .675, and explains 16.8% of the variance in PTSD symptom severity scores. Emotion-focused coping on the other hand has a non-significant simple correlation of $r = .070$, a beta coefficient of -.353 and only explains 13% of the variance in the outcome variable. It can be seen that Problem-focused coping is a more influential variable than Emotion focused coping. The influence of Problem-focused coping may be the overriding factor in the positive relationship of the Overall coping variable in Regression Model 2. The total variance explained in Regression Model 1 by Problem-focused and Emotion-focused coping was 29.8%. However, the combined variable, Overall coping, only explains 6.8% of the variance. The loss of predictive power in the combined variable is large and future research should include the separate variables of Problem-focused coping and Emotion focused coping

instead of the combined coping variable as the two separate variables explain more variance in PTSD symptom severity scores.

Neither regression model is significant in their prediction of the outcome variable.

Regression Model 1 predicts the outcome variable with an F ratio change of $F = .039$, ($df = 5,91$, $\rho = .844$) and Regression Model 2 has an F ratio change of $F = 2.326$, ($df = 4,92$, $\rho = .131$). From the results of the present study the regression model of best fit is suggested. A regression model that significantly predicts PTSD symptom severity includes the variables Problem-focused coping, Emotion-focused coping, and Perceived social support. The suggested model accounts for 44.4% of the variance in PTSD symptom severity scores (see Table 2, block C). The conclusion of the present study is that the inclusion of these variables into a regression model yields the model of best fit and should be used in future research into PTSD symptom severity within the SAPS.

5.2 *Implications of the study*

The findings from Regression Model 1 suggest that Problem-focused coping did not effectively aid officers in the alleviation of their PTSD symptom severity. It was found that if indeed the officers did use this method of coping, their PTSD symptom severity increased. Emotion-focused coping on the other hand was found in the model to be beneficial to officers that used this coping strategy. Perceived social support was also found to be beneficial to the severity of PTSD symptoms of the officers. The other variables were found not to have any significant affect on PTSD symptom severity.

From the present study it was observed that Extent of service experience, Gender, Education level, and Years in service had non-significant relationships with the outcome variable and that they should be excluded from models investigating symptom severity in the future. Overall coping had no beneficial effect on the outcome variable and should be separated into the two variables of Problem-focused and Emotion-focused coping in the future. As in Regression Model 1 Perceived social support had a very beneficial effect on PTSD symptom severity within the sample in Regression Model 2 and was a significant contributor to the model. Perceived social support is a very important factor to take into consideration when investigating symptoms of PTSD within the SAPS.

The model of best fit for the prediction of PTSD symptom severity levels was found to include the variables of Problem-focused coping, Emotion-focused coping, and Perceived social support. The model of best fit should be used by members of the SAPS for future research into PTSD symptom severity of their officers, the levels of which should be investigated periodically to keep track of the problem in officers. The high suicide rate within the SAPS is testament to the high levels of stress that officers are under and PTSD is a problem that needs to be addressed with seriousness.

From the findings of the present study the SAPS should aim to train officers in how to use the most appropriate coping strategy, which from the sample studied was Emotion-focused coping such as receiving emotional advice or support from others and to utilise social support networks. Support networks were found to be the most useful when managing stress and trauma.

An initial problem that was raised by officers in the sample was that they do not have time to go find external help. An option for the SAPS would be to employ a psychologist that goes to the stations. A psychologist that is easily accessible to the officers may encourage them to seek assistance if needed. Another major obstacle that officers face in receiving assistance, is the stigma that seeking help may produce within the service. Many officers do not seek help for fear of appearing 'weak' in front of colleagues. Mandatory sessions with a psychologist or an equivalent peer supporter may overcome this problem. If each officer had to undergo a session with a supporter after a traumatic incident then the stigma would lessen and the officers would accustom to the support.

It is suggested from the findings of the present study that the SAPS need to focus on the development of internal support networks that officers are willing to use. Much animosity was found amongst officers in the sample to using internal sources of support because of the lack of trust officers had in them. The lack of trust mostly stems from the false belief that the psychologist does not understand what officers go through as they are not actually in the service and therefore cannot effectively help. A solution to this problem may be the use of peer supporters. An existing officer that is respected within the station could be approached to fill this role. The role would entail providing a space for officers to confidentially 'vent' their frustrations. The peer supporter could be trained in basic counselling skills and have the resources to be able to refer the officer for further therapy if needed. The instigation of peer supporters and mandatory sessions after a traumatic incident may encourage officers to actively seek assistance outside of the mandatory sessions. Station Commissioners should actively instigated peer supporters so it is not

seen as another order from the provincial or national level. If the support was initiated from the ground level up, officers would again be more likely to participate in their own psychological health. If the support resource is available then it must be utilised and for that to happen the stigma amongst SAPS members surrounding psychological assistance has to be lessened and peer supporters is one way to address the problem.

5.3 *Limitations of the study*

Limitations of the research include its cross-sectional research design. Coping is a process that can change over time and it is expected that methods employed by officers may change over time and context. Longitudinal research may be more appropriate when investigating this process. Self-report measures have many inherent flaws. The measures reduce the subject matter to a simple score and through this rudimentary quantification the variable cannot be studied in its fullness losing aspects such as timing, appropriateness, and sequencing (Coyne & Racioppo, 2000). Another limitation of self-report measures is that they do not incorporate the person as a whole; their beliefs and attitudes are lost (Lazarus, 1993). A structured clinical interview would be more appropriate. A further limitation of the study was the length of the questionnaire battery. The questionnaires, on average, took each police officer 30 minutes to complete, with the longest taking 85 minutes. The officers tended to lose concentration towards the end of the questionnaires. The loss of concentration may have produced rushed, inaccurate answers. A shorter set of questionnaires should be used in future. The Language of the questionnaires was English and although all officers had good English some struggled

with some of the wordings in the questions. Questionnaires with appropriate translations may be more beneficial in future study in a multicultural society.

Chapter Six

6. Conclusions

Using police officers in the West Metropol of the Western Cape as a sample revealed the broad spectrum of stressful situations that these officers' face whilst on duty. The study revealed that the level of PTSD symptom severity in the sample of officers was not remarkably high in comparison to international samples and samples in the South African context. The results, however, did reveal that there were a number of officers (9.28%) that had severe levels of PTSD symptom severity. Data is not available to investigate whether the percentage of the sample at this symptom severity level is the base level or not. The lack of data pertaining to the base level of symptom severity poses a challenge for future research to determine.

Results from Regression Model 1 established that Emotion-focused coping and Perceived social support had significant negative and hence beneficial relationships with the officers' PTSD symptom severity levels. Problem-focused coping has a significant positive relationship with PTSD symptom severity and served to exacerbate symptoms of PTSD in officers in the sample. The result was an unexpected finding. Finally it was found that the variables Extent of service experience, Gender, Education level attained, and Years in service had non-significant relationships with PTSD symptom severity levels. The four variables, therefore, should not be included into regression models investigating PTSD symptom severity levels in future research.

When compared the results demonstrated that neither Regression Model 1 nor Regression Model 2 predicted severity levels of PTSD symptoms in the SAPS adequately. From the analysis of each variable the Regression Model of best fit was suggested. The model includes the variables Problem-focused coping, Emotion-focused coping, and Perceived social support.

The results of the present study identifying Perceived social support to be a very effective beneficial factor suggests that the SAPS need to focus on the development of internal support networks. Officers may or may not have social support networks outside of the police service and whether they do or not they need to know that they at least have one source of support at work. The networks must be of a nature that officers are willing and able to use them. The use of existing police officers as trained peer supporters could be used to fill this role of the internal support network. The peer supporters ideally should be constantly present in the stations to give officers easy access to them if they should need them. A mandatory session with the peer supporter after a traumatic incident is suggested to overcome preconceived ideas of stigma that officers may have concerning seeking help and appearing 'weak' in the eyes of other officers.

Future research should employ a longitudinal research design with structured clinical interviews. The clinical interview would allow the researcher to form a more comprehensive assessment of the individual, their coping strategies, social support structures, beliefs, and how they interpret certain incidences. The clinical assessment would aid in the understanding of why officers react in particular ways to particular

stressors. Future research may also wish to examine how the different genders utilise their social support networks and what each gender understands social support networks to be. The future researcher may also compare the levels and the types of crime that officers face in South Africa to international levels and types of crime. The comparison would serve to evaluate the present situation in South Africa.

The present study has resolved the researcher's questions regarding PTSD symptom severity levels in the SAPS. In turn it has initiated a few subsequent questions. Questions such as; Are there acceptable limits of PTSD symptom severity within the police population, or any other population, that allows for officers to carry out their job effectively? If so, what would the cut-off point be between carrying out effective work and non-effective work? How would this be measured and how subjective would this cut-off point be? Is there a certain 'natural' base limit of PTSD symptoms that is always going to be present, about which, nothing can be done? If people have poor overall coping mechanisms and support networks should they be allowed into a highly stressful profession such as the police service or other emergency services in the first place? These are question for future research.

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Appendix A

Diagnostic criteria for 309.81 Posttraumatic Stress Disorder (American Psychiatric Association, 2000, p. 467-468)

- A. The person has been exposed to a traumatic event in which both of the following were present:
- 1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others.
 - 2) the person's response involved intense fear, helplessness, or horror. **Note:** in children, this may be expressed instead by disorganised or agitated behaviour.
- B. The traumatic event is persistently reexperienced in one (or more) of the following ways:
- 1) recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. **Note:** in young children, repetitive play may occur in which themes or aspects of the trauma are expressed.
 - 2) recurrent distressing dreams of the event. **Note:** in children, there may be frightening dreams without recognisable content
 - 3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on waking or when intoxicated). **Note:** in young children, trauma-specific re-enactment may occur.
 - 4) intense psychological distress at exposure to internal or external cues that symbolise or resemble an aspect of the traumatic event.
 - 5) physiological reactivity on exposure to internal or external cues that symbolise or resemble an aspect of the traumatic event.

C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not persistent before the trauma), as indicated by three (or more) of the following:

- 1) efforts to avoid thoughts, feelings, or conversations associated with the trauma
- 2) efforts to avoid activities, places, or people that arouse recollections of the trauma
- 3) inability to recall an important aspect of the trauma
- 4) markedly diminished interest or participation in significant activities
- 5) feeling of detachment or estranged from others
- 6) restricted range of affect (e.g., unable to have loving feelings)
- 7) sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:

- 1) difficulty falling or staying asleep
- 2) irritability or outbursts of anger
- 3) difficulty concentrating
- 4) hypervigilance
- 5) exaggerated startle response

E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than 1 month.

F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Specify if:

Acute: if duration of symptoms is less than 3 months

Chronic: if duration of symptoms is 3 months or more

Specify if:

With delayed onset: if onset of symptoms is at least six months after the stressor.

(American Psychiatric Association, 2000, pp. 467-468)

Appendix B

(Duty-related stressful situations)

Below is a list of duty-related stressful situations that was compiled by some of your fellow officers. Please read each one carefully and tick the ones that you have experienced while on duty.

Murder of a colleague _____	Attacks on the elderly _____
Lack of logistical equipment _____	Crimes against the vulnerable _____
Scene of car accident _____	House breaking _____
Shooting incident _____	Robberies _____
Gang violence _____	Ease of bail for perpetrators _____
Domestic violence _____	Tension between officers _____
Poor working conditions _____	Disorganisation of station _____
Train accidents _____	Dishonesty _____
Too much paper work _____	Laziness of other officers _____
Low salary _____	Unfair labour procedures _____
Attending a murder scene _____	Long working hours _____
Child molestation _____	Internal detective investigation _____
Poor justice system _____	Case withdrawal _____
Incompetent colleagues _____	No help from courts _____
Too heavy workload _____	Lack of officer discipline _____
Corruption _____	Role uncertainty _____
Bureaucratic structures _____	Being on time for work _____
Shortage of manpower _____	Working correctly _____
Community pressure _____	Being up to date with work _____
Rape victims _____	Social acceptability _____
Assault victims _____	Car chase in heavy traffic _____
Alcohol/drug related crimes _____	Accommodation _____
Pressure/conflict from superiors _____	Weapon problems/faults _____

Poor internal communication _____

Child murder scene _____

Poor management style _____

Low officer morale _____

Lack of promotion opportunities _____

Lack of recognition _____

Lack of injury compensation _____

Other (please specify) _____

This is the end of the questionnaires

Thank you very much for participating in this study it is greatly appreciated. The information supplied by you will add valuable information to the study and the area of police trauma, enabling others to effectively assist the police in this matter.

Russell Jones (Researcher)

Appendix C

(PTSD Symptom Scale: Self-Report Version)

Please think of a duty-related traumatic event that has happened to you in the past couple of months. Below is a list of the problems that people sometimes have after experiencing a traumatic event. Read each one carefully and circle the number (0-3) that best *truthfully* describes how often that problem has or still does bother you.

	Not at all/only one time	Once a week/once in a while	2 to 4 times per week/half the time	5 or more times per week/almost always
1. Have upsetting thoughts or images about the traumatic event that came into your head when you didn't want them to?	0	1	2	3
2. Having bad dreams or nightmares about the traumatic event?	0	1	2	3
3. Reliving the traumatic event, acting or feeling as if it were happening?	0	1	2	3
4. Feeling EMOTIONALLY upset when you were reminded of the traumatic event (for example feeling scared, angry, sad, guilty, etc.)?	0	1	2	3
5. Experiencing PHYSICAL reactions (for example, break out in sweat, heart beats fast) when you were reminded of the traumatic event?	0	1	2	3
6. Trying not to think about, talk about, or have feelings about the traumatic event?	0	1	2	3
7. Trying to avoid activities, people, or places that remind you of the traumatic event?	0	1	2	3
8. Not being able to remember an important part of the traumatic event?	0	1	2	3
9. Having much less interest or participating much less often in important activities?	0	1	2	3
10. Feeling distant or cut-off from the people around you?	0	1	2	3
11. Feeling emotionally numb (for example, being unable to cry or unable to have loving feelings)	0	1	2	3

12. Feeling as if your future plans or hopes will not come true (for example, you will not have a career, marriage, children, or a long life)?	0	1	2	3
13. Having trouble falling or staying asleep?	0	1	2	3
14. Feeling irritable or having fits of anger?	0	1	2	3
15. Having trouble concentrating (for example, drifting in and out of conversations, losing track of a story on television, forgetting what you read)?	0	1	2	3
16. Being overly alert (for example, checking who is around you, being uncomfortable with your back to the door, etc.)?	0	1	2	3
17. Being jumpy or easily startled, (for example, when someone walks up behind you)?	0	1	2	3

Appendix D

(Extent of service experience Questionnaire)

Please fill in the three items below accurately

1) What is your current rank? (Please circle)

Constable

Sergeant

Inspector

Captain

Superintendent

Senior Superintendent

Director

Assistant Commissioner

Provincial & Divisional Commissioner

Deputy National Commissioner

National Commissioner

Other (please specify).....

2) How many years have you been in the police service (excluding training)?

.....

3) What is the highest level of education have you achieved? (Please circle)

No formal education

Primary education

Secondary education (Matric)

Tertiary education (University degree, diploma, Technikon, etc.)

Other (Please specify).....

Appendix E

(Sample of Ways of Coping Questionnaire – Revised)

Please read each item below and indicate, by using the following rating scale, to what extent you use them in a stressful situation.

Not used	Used somewhat	Used quite a bit	Used a great deal
0	1	2	3

- ___ 1. Just concentrated on what I had to do next – the next step.
- ___ 2. I tried to analyse the problem in order to understand it better.
- ___ 3. Turned to work or substitute activity to take my mind off things.
- ___ 4. I felt that time would make a difference – the only thing to do was to wait.
- ___ 5. Bargained or compromised to get something positive from the situation.
- ___ 6. I did something which I didn't think would work, but at least I was doing something.
- ___ 7. Tried to get the person responsible to change his or her mind.
- ___ 8. Talked to someone to find out more about the situation.
- ___ 9. Criticised or lectured myself.
- ___ 10. Tried not to burn my bridges, but leave things open somewhat.
- ___ 11. Hoped a miracle would happen.
- ___ 12. Went along with fate; sometimes I just have bad luck.
- ___ 13. Went on as if nothing had happened.
- ___ 14. I tried to keep my feelings to myself.
- ___ 15. Looked for the silver lining, so to speak; tried to look on the bright side of things.
- ___ 16. Slept more than usual.
- ___ 17. I expressed anger to the person(s) who caused the problem.
- ___ 18. Accepted sympathy and understanding from someone.
- ___ 19. I told myself things that helped me to feel better.
- ___ 20. I was inspired to do something creative.

Appendix F

(Multidimensional Scale of Perceived Social Support)

We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement by circling the appropriate number using the following scale.

- 1 = Very strongly disagree
- 2 = Strongly disagree
- 3 = Mildly disagree
- 4 = Neutral
- 5 = Mildly agree
- 6 = Strongly agree
- 7 = Very strongly agree

- | | | | | | | | | |
|-----|---|---|---|---|---|---|---|---|
| 1. | There is a special person who is around when I am in need. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. | There is a special person with whom I can share joys and sorrows. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. | My family really tries to help me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. | I get the emotional help and support I need from my family | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. | I have a special person who is a real source of comfort to me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. | My friends really try to help me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. | I can count on my friends when things go wrong. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. | I can talk about my problems with my family. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. | I have friends with whom I can share my joys and sorrows. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. | There is a special person in my life who cares about my feelings. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. | My family is willing to help me make decisions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. | I can talk about my problems with my friends | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Appendix G

Consent Form

This study titled 'The relationship between Post-traumatic stress symptoms, coping style, perceived social support and extent of service experience within the Western Cape police service' is an investigation into how coping, social support and demographic variables such as age, rank or education level affect how police officers deal with duty-related trauma and its subsequent effects.

This is not an internal assessment and will in no way affect your position in the police service. You will be asked to fill in questionnaires concerning demographic information, social support, trauma symptoms, coping, and duty-related stressful situations. These questionnaires are completely anonymous and confidential and their completion is entirely on a voluntary basis. You are free to stop at any time if you so wish.

If you are willing to complete these questionnaires, which should take approximately 20 minutes, please sign below to state that you have read and understand the above information. Upon completion of the questionnaires, to assure you that only the researcher has access, please place the questionnaires back in the envelope, seal it, and return it to the researcher. However, if you do not wish to participate in answering the questionnaires please hand the envelope with its contents back to the researcher.

Your participation in this study is greatly appreciated and will add valuable information to the field of police coping in the aftermath of trauma. If you have any further questions later feel free to contact the researcher at Russelljones@mail.com

Signature

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Appendix H

Ranked stressful duty-related situations (highest to lowest)

Situation	Cases reported in sample	% of sample that reported cases
Robberies	86	88.66
House breaking	82	84.54
Domestic violence	82	84.54
Shortage of manpower	79	81.44
Lack of logistical equipment	79	81.44
Low salary	77	79.38
Seeing an assault victim	75	77.32
Alcohol or drug related crime	75	77.32
Shooting incidents	74	76.29
Laziness of officers	74	76.29
Scene of car accident	73	75.26
Lack of promotion opportunity	73	75.26
Poor internal communications	72	74.23
Seeing rape victims	72	74.23
Poor working conditions	71	73.20
Too much paper work	71	73.20
Community pressure	71	73.20
Attending a murder scene	70	72.16
Tension between officers	69	71.13
Lack of recognition in job	68	70.10
Corruption in service	66	68.04
Too heavy workload	64	65.98
Dishonesty	64	65.91
Poor justice system	63	64.95
Gang violence	63	64.95
Unfair labour processes	62	63.92
Lack of officer discipline	62	63.92
Low morale	61	62.85
Disorganisation of station	61	62.85
Crimes against the vulnerable	61	62.85
Pressure/conflict with superior	61	62.85

Incompetent colleagues	61	62.85
Long working hours	60	61.86
Poor management	60	61.86
Car chase in heavy traffic	59	60.82
Ease of bail for perpetrators	58	59.79
Being on time for work	58	59.79
Attacks of the elderly	57	58.76
Cases withdrawn	56	57.73
Being on time for work	55	56.70
Working correctly	53	54.64
Child molestation cases	50	51.55
No help from courts	48	49.48
Murder of colleague	48	49.48
Train accident	47	48.45
Social acceptance	47	48.45
Internal investigations	45	46.39
Accommodation	44	45.38
Lack of injury compensation	43	44.33
Child murder cases	39	40.21
Role uncertainty	39	40.21
Faulty weapons	36	39.11
Bureaucratic structures	34	35.05

Appendix I

Table 1

Casewise Diagnostics Table for regression model 1

Case Number	Std. Residual	PTSD score	Predicted Value	Residual
93	2.253	49.00	26.9022	21.0978
96	2.531	50.00	26.2959	23.7041

a. Dependent Variable: PTSD score

Table 2

Case Summaries Table for regression model 1

Case Number	Cook's Distance	Mahalanobis Distance	Centred Leverage Value
93	.04904	4.74971	.04948
96	.09184	7.08874	.07384

Appendix J

Figure 2. Frequency histogram of Regression Standardized Residuals

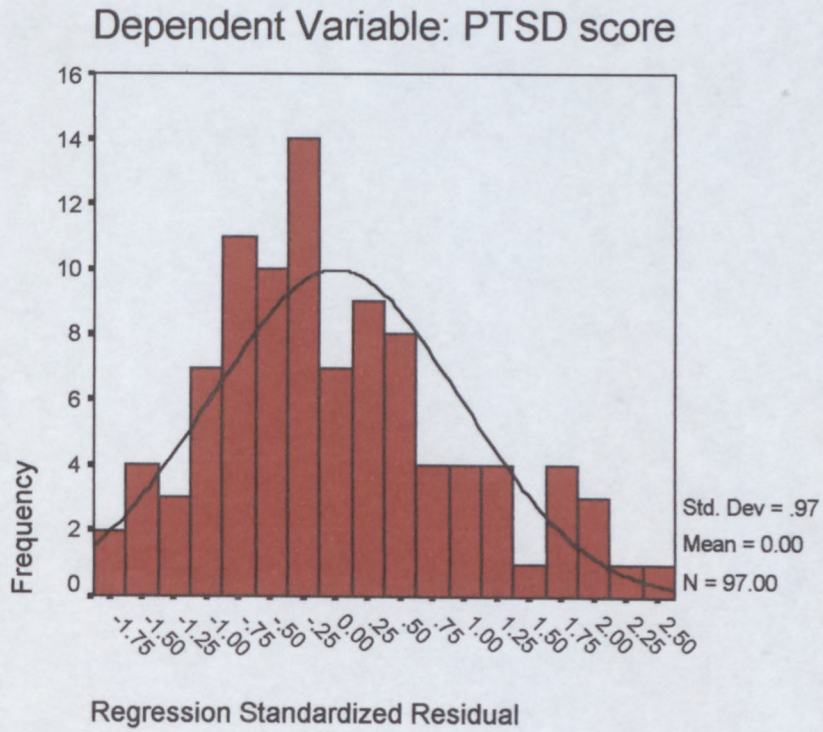
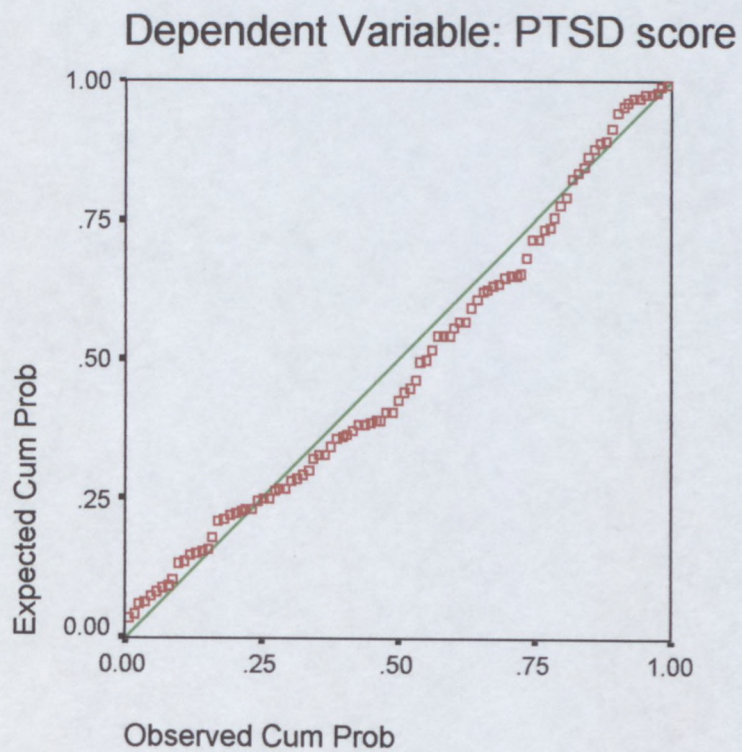


Figure 3. Normal P-P plot of Regression Standardized Residual



Appendix K

Collinearity Diagnostics for Regression Model 1

Dimension	Eigenvalue	Condition Index	Constant	Problem-focused coping	Emotion-focused coping	Perceived social support	Extent of service experience	Age	Gender
1	5.783	1.000	.00	.00	.00	.00	.00	.00	.01
2	.737	2.801	.00	.00	.00	.00	.01	.00	.72
3	.324	4.225	.00	.01	.01	.01	.13	.00	.23
4	.101	7.568	.01	.20	.01	.26	.02	.00	.00
5	3.109E-02	13.638	.13	.10	.00	.66	.14	.05	.01
6	1.848E-02	17.688	.03	.68	.96	.04	.05	.00	.02
7	5.076E-03	33.754	.83	.00	.01	.03	.65	.95	.02

a. Dependent Variable: PTSD score

Appendix L

Descriptive Statistics for Regression Model 1

	Mean	Std. Deviation	N
PTSD Score	15.1237	12.2468	97
Problem-focused coping score	33.9794	12.7066	97
Emotion-focused coping score	42.1134	12.2346	97
Perceived social support score	58.6804	16.1210	97
Extent of service experience score	33.2680	24.2665	97
Age of officer	31.5567	6.1390	97
Gender of officer	.2680	.4452	97

Appendix M

Table 1

Casewise Diagnostics Table for Regression Model 2

Case Number	Std. Residual	PTSD score	Predicted Value	Residual
38	2.784	46.00	17.4945	28.5055
51	2.573	36.00	9.6597	26.3403
93	2.011	48.00	27.4105	20.5895
96	2.328	50.00	26.1644	23.8356

Table 2

Case Summaries Table for Regression Model 2

Case Number	Cook's Distance	Mahalanobis Distance	Centred Leverage Value
38	.09495	4.26366	.04441
51	.10129	5.40859	.05634
93	.05095	4.39721	.04580
96	.13661	8.77272	.09138

Appendix N

Collinearity Diagnostics for Regression model 2

Dimension	Eigenvalue	Condition Index	Constant	Overall coping	Perceived social support	Education level attained	Years in service	Rank
1	5.332	1.000	.00	.00	.00	.00	.00	.00
2	.492	3.291	.00	.02	.01	.00	.08	.02
3	8.347E-02	7.992	.00	.49	.03	.14	.04	.00
4	5.105E-02	10.220	.01	.05	.83	.20	.02	.00
5	2.982E-02	13.372	.00	.00	.02	.09	.83	.90
6	1.115E-02	21.865	.99	.43	.10	.56	.03	.08

a. Dependent Variable: PTSD score